



America's Strategy-Resource Mismatch

Addressing the Gaps Between U.S. National Strategy and Military Capacity

Timothy M. Bonds, Michael J. Mazarr, James Dobbins, Michael J. Lostumbo, Michael Johnson, David A. Shlapak, Jeffrey Martini, Scott Boston, Cristina L. Garafola, John Gordon IV, Sonni Efron, Paul S. Steinberg, Yvonne K. Crane, Daniel M. Norton

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Preface

Significant gaps exist in the ability of the United States and its allies to deter or defeat aggression that could threaten their national interests. NATO members Estonia, Latvia, and Lithuania remain vulnerable to a rapid Russian invasion. South Korea is vulnerable to a drawn-out barrage from a relatively small percentage of North Korea's artillery. China's neighbors—especially Taiwan—are vulnerable to coercion and aggression. Finally, violent extremists continue to pose a threat in the Middle East, Afghanistan, and around the world. Solutions to these problems will take both money and time. In the United States, the needed funds are limited today by the Budget Control Act and the competing imperatives to modernize nuclear and conventional forces. We therefore discuss which missions should be prioritized and suggest some changes to U.S. strategy and investments to best close these gaps.

This report should be of interest to defense policymakers, practitioners in the executive and legislative branches, analysts, the media, experts in nongovernmental organizations, and those concerned with defense planning and the role of the United States in international security affairs.

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Summary

The 2018 National Defense Strategy (NDS) identifies long-term, strategic competition with China and Russia as the central challenge to U.S. security and the principal priority for the U.S. Department of Defense (DoD).¹ The NDS tasks DoD with simultaneously defending the homeland and deterring aggression in Europe, the Indo-Pacific, and the Middle East. The NDS also directs DoD to counter North Korea and Iran and defeat terrorist threats to the United States. In wartime, it must “be capable of: defeating aggression by a major power; deterring opportunistic aggression elsewhere; and disrupting imminent terrorist and [weapons of mass destruction] threats.”² Altogether, the 2018 NDS imposes higher demands on the military than did the final Quadrennial Defense Review of the administration of President Barack Obama, which sought the capability to defeat a regional aggressor and “den[y] the objectives of—or impos[e] unacceptable costs on—a second aggressor in another region.”³ To meet these higher demands, the NDS charges the military services with building a more lethal force; strengthening alliances and attracting new partners; and reforming DoD for greater performance and affordability.

Unfortunately, the NDS is not adequately supported by military forces, causing a strategy-resource gap. According to the National Defense Strategy Commission,

[T]he security and wellbeing of the United States are at greater risk than at any time in decades. America’s military superiority—the hard-power backbone of its global influence and national security—has eroded to a dangerous degree. Rivals and adversaries are challenging the United States on many fronts and in many domains. America’s ability to defend its allies, its partners, and its own vital interests is increasingly in doubt. If the nation does not act promptly to remedy these circumstances, the consequences will be grave and lasting.⁴

This report explores the significant gaps between the heightened demands of the 2018 NDS and the resources and capabilities required to implement policies to close those gaps successfully and simultaneously around the world. The research specifically aimed to (1) identify gaps between U.S. security policy and U.S. military capabilities and capacity; (2) propose a framework for prioritizing resource allocation; and (3) identify combinations of near-term

¹ DoD, *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military’s Competitive Edge*, Washington, D.C., January 19, 2018a.

² DoD, 2018a, p. 6.

³ DoD, *Quadrennial Defense Review 2014*, Washington, D.C., March 4, 2014, p. vi.

⁴ Eric Edelman, Gary Roughead, Christine Fox, Kathleen Hicks, Jack Keane, Andrew Krepinevich, Jon Kyl, Thomas Mahnken, Michael McCord, Michael Morell, Anne Patterson, and Roger Zakheim, *Providing for the Common Defense: The Assessment and Recommendations of the National Defense Strategy Commission*, Washington, D.C.: United States Institute of Peace, November 13, 2018, p. v.

investments in military capabilities, technical innovations, and new geopolitical initiatives and concepts that together could reduce an adversary's opportunities.

Prioritizing—and Countering—Threats

All threats to national security are not equal; a successful defense strategy requires the prioritization of threats and the allocation of resources accordingly. Table S.1 presents the hierarchy of threats based on the priorities identified in the NDS and our analysis of the most serious worldwide threats.

Tier 1 Priorities

Protecting the U.S. homeland and the American people is the top constitutional duty of the President and the premier mission of DoD. The gravest threat is posed by hostile state actors armed with nuclear weapons. Therefore, the first national security priority is to have a reliable and effective nuclear counterstrike ability to deter state powers from attacking the United States. This requires modernizing the U.S. nuclear arsenal and its delivery systems: the triad of bombers, land-based ballistic missiles, and submarine-launched missiles.

Next, the United States requires a ballistic missile defense that is good enough to defeat a small intercontinental strike (i.e., on the order of 10 missiles) by such second-tier nuclear powers as North Korea and, perhaps in the future, Iran and others.

Finally, the United States must be able to preempt attacks by terrorists, and especially by those who have gained access to weapons of mass destruction (WMD). This will require continuing strong international intelligence efforts tied with special operations to intercept weapons abroad and law enforcement to interdict threats at home. It may also require the United States to prepare its military forces to seize and secure nuclear facilities and weapons if a nuclear-capable rogue state—such as North Korea—collapses.

As the United States becomes vulnerable to other modes of attack (such as biological weapons or the developing cyber threats), additional categories of defense investments will be required (similar to the establishment of U.S. Cyber Command and its subordinate forces to meet cyber threats).

The investments needed to protect the U.S. homeland and its people should be—and ultimately will be—the first priority for DoD. All the other priorities that we discuss will compete for whatever funds are left over, or for additional funding the President requests and Congress agrees to provide.

Table S.1. U.S. Defense Priorities, Missions, and Needed Actions

Priority	Mission	Strategy	Action Needed
Tier 1	Deter attack by nuclear states	• Massive response	• Modernize U.S. nuclear arsenal and delivery systems
	Defeat limited ballistic missile attacks	• Ballistic missile defense (BMD)	• Improve and grow missile defenses
	Pre-empt terror attacks; especially with WMD	• Detect, degrade, destroy terror cells • Interdict transfer of nuclear weapons or materials; seize loose nukes	• World-wide intelligence, special operations efforts • Organize, train, and equip units to find, seize, secure loose nukes
Tier 2	Deter Russian aggression in the Baltics	• Posture force able to blunt initial attack and surge reinforcements to win	• Return some air and heavy ground units to Europe as blunt force. • Modernize and pre-position equipment for “surge” reinforcements
	Deter North Korean missile and artillery attack	• Credible RoK-US counter-fire, counter-offensive and NEO capabilities	• Help RoK strengthen civilian and military defenses, counter-fires capabilities, air-ground counter-offensive and NEO capabilities
	Deter Chinese invasion of Taiwan	• Credible Taiwanese defense able to blunt attack; US ability to surge reinforcements	• Help Taiwan strengthen its “Blue A2/AD” defenses • Improve U.S. ability to reinforce and assist Taiwan should China attack
Tier 3	Counter Chinese coercion against Japan, Philippines	• Help Japan, Philippines build defenses • Combined-force exercises to counter potential Chinese attacks	• Strengthen allied air, maritime, and ground defenses • Organize, train, and equip combined units to defeat Chinese attacks
	Deter Iranian aggression	• Help Persian Gulf partners build defenses • Exercise forces to counter Iranian attacks	• Strengthen partner air, missile, and maritime defenses • Organize, train, and equip units to defeat Iranian A2/AD
	Defeat violent extremist organizations	• Degrade violent extremist organizations and deny them opportunities to attack	• Help allies and partners build their capacity to resist and defeat VEOs

NOTES: ROK = Republic of Korea. NEO = noncombatant evacuation operation. A2/AD = anti-access/area denial. VEO = violent extremist organization.

Tier 2 Priorities

Several adversaries have the ability to attack with little advance notice and before the United States could deploy forces to respond. These adversaries pose urgent problems for the United States and its allies and partners. Russia could overrun its Baltic neighbors before the United States and its NATO allies could reinforce them. If the current warming of relations with North Korea turns hostile once more, Seoul could be at risk of an artillery strike for which its military and civilians—and many U.S. nationals—might be unprepared. North Korea’s regime may fall someday, exposing its nuclear weapons to theft and transfer to terror groups. Finally, China could attack Taiwan before the United States could deploy adequate forces to defeat an invasion.

President Trump to date has decided to maintain U.S. commitments to Article 5 of the NATO Treaty, including active participation in the defense of the Baltic states of Estonia, Latvia, and Lithuania.⁵ The United States and its NATO allies have deployed troops to the Baltic region to help deter a potential, though unlikely, Russian attack. However, those forces, and the reinforcements able to reach them quickly, would be insufficient to defeat a short-notice attack. A Russian overrun would force the United States and its allies to (1) commit to a counteroffensive, at terrible cost in lives and treasure; (2) threaten escalation, including to

⁵ NATO, The North Atlantic Treaty, Washington, D.C., April 4, 1949.

nuclear war, and prepare to make good on that threat; or (3) sue for peace. Each choice is miserable and the first two risk an all-out war with a well-armed nuclear state.

By far the best choice is to deter such a war from ever beginning by having the credible ability to deny Russian objectives in an attack. Blunting a Russian attack on the Baltics would require the equivalent of a U.S. armored division in eastern Europe and other air, sea, and ground forces that could deploy to the Baltics on short warning before fighting started. Former U.S. Secretary of Defense James Mattis stated that NATO must have 30 mechanized battalions, 30 fighter squadrons, and 30 ships ready to reinforce the initial defenders within 30 days to defeat an invasion and free captured territory. At present, most of these forces would have to be provided by the United States, although the allies should begin to rebuild their capabilities in order to bear a more equitable portion of this burden. A credible deterrent will require these forces to have improved mobile air defenses; additional artillery; improved targeting capabilities; longer-range suppression of enemy air defenses (SEAD) weapons; and a new generation of area-effects weapons able to destroy Russian armor, air defenses, and artillery.

Notwithstanding the June 12, 2018, summit between President Trump and North Korean leader Kim Jong-un, North Korea continues to pose four potential threats to the United States and its allies. The U.S. military will continue to be obliged to counter those threats that directly place the United States at risk while diplomats and others work to change facts on the ground. First, North Korea may now be able to attack South Korea with nuclear weapons. And, absent any new and highly effective arms control agreements, North Korea may complete development of missiles able to strike Japan and even the United States. Although modernized U.S. nuclear forces should deter such attacks, a limited ballistic missile defense in the Korean theater (in addition to limited missile defenses of the U.S. homeland described above) is also needed to mitigate the risk of a North Korean strike as a final act of desperation.

Second, North Korea could use its artillery forces to attack South Korean territory, including Seoul and other cities. North Korea could do this as a way of retaliating against a future U.S. strike on its missile development activities; for example, if the current rapprochement sours and North Korea launches another intercontinental ballistic missile (ICBM) test. In another example, North Korea might respond to a perceived South Korean offense, such as sending messages to North Korean citizens via cell phones, the internet, or with loudspeakers. If some artillery attack were to occur, it would be very hard for the United States and South Korea to end it with counterbattery fires alone. Pyongyang could continue a small attack indefinitely, or it could stop and restart attacks to coerce South Korea to grant concessions. In the end, the choice might be to either punish North Korea with proportional strikes against military and military-supporting industrial targets or launch a ground assault to clear North Korean artillery from areas within range of Seoul. A ground assault would be very costly in lives lost and forces needed, but the ROK and United States might want to maintain this option as part of a deterrence strategy. In the longer term, the United States and South Korea should develop persistent sensors and area-effects weapons that are able to sense and attack North Korean artillery at any point in their firing cycle.

Third, a continuing North Korean artillery barrage might cause hundreds of thousands or even millions of civilians to flee cities along the demilitarized zone (DMZ) and perhaps Seoul itself. More than 200,000 Americans may be among them, including families of U.S. military service members and others on official business. The United States should improve its ability to warn, locate, and evacuate these civilians.

Fourth, North Korea eventually could collapse as the result of a war, a political or social upheaval, or an economic disaster, leaving its nuclear arsenal vulnerable to theft and proliferation. The United States should hold discussions now with South Korea, China, and other concerned nations that could lead to coordinated counterproliferation operations in the future. The United States also should improve the capabilities of its intelligence assets to assist in identifying and tracking nuclear weapons and have forces prepared to find, seize, and secure them.

As a final Tier 2 threat, China may use military power to coerce or force reunion with Taiwan. Although it seems unlikely that China would invade Taiwan in the near future, it is becoming increasingly difficult for the United States to defend Taiwan from distant bases against a dramatically improving Chinese military. Taiwan must therefore bear most of the burden for the first hours or days of its own defense. To do so, Taiwan should shift the bulk of its investments to ground-based “Blue A2/AD” missile systems to fend off a Chinese air and sea assault long enough for help to arrive. The United States should help Taiwan build systems, forces, and operational concepts that can be interoperable with the multidomain concepts under development by the U.S. military. For its part, the United States should invest in complementary capabilities, such as long-range anti-ship missiles that can be employed by bombers at a safe distance from Chinese air defenses. The United States can help shape Taiwan’s risk calculus and how provocative it should be in its relations with China.

Tier 3 Priorities

China may increase its coercive actions against its neighbors in Southeast Asia and the Western Pacific, including the Republic of the Philippines and Japan. These nations are primarily responsible for their own defense, but the United States could help them to build air, sea, and ground forces able to employ a wide range of anti-ship, anti-air, and surface-to-surface missile systems. This will both directly benefit these nations’ defense and provide time and opportunities for the United States to come to their aid if attacked. At the same time, the United States should consider other initiatives to tilt the geopolitical balance in its favor, including

- continuing and expanding defense cooperation arrangements with partners (Japan, Vietnam, Singapore, Australia, New Zealand, India, and Indonesia)
- reaffirming the U.S. view that the Senkaku Islands fall within the U.S.-Japan security agreement
- encouraging other countries to show persistent support for international law and opposition to aggression in the region through such measures as freedom of navigation operations

- giving rhetorical, financial, and diplomatic support to regional initiatives to resolve territorial disputes and create norms of conduct, such as the effort to solidify an Association of Southeast Asian Nations (ASEAN) Code of Conduct
- engaging China to reduce tensions and develop conflict-resolution channels and procedures regarding Taiwan and other disputes in the Indo-Pacific.

Iran may continue to be a troublemaker in the greater Middle East, albeit on a smaller scale. As in the Indo-Pacific, the United States should assist allies and partners in developing their security capabilities.

VEOs, including the Islamic State of Iraq and Syria (ISIS),⁶ al Qaeda, and Taliban-allied groups, will continue to pose a threat to the United States and its allies and partners. The United States is likely to consider it necessary to continue some level of troop deployments for the foreseeable future to fight these threats. The trick will be to find a commitment level that is sustainable for the United States and its allies, deters state sponsorship of VEOs, and keeps them from expanding or improving their capabilities. It might be possible to create some efficiencies by shifting from U.S. combat forces to the new security force assistance brigades.

Budget Constraints

As much as the United States might wish to address each of these problems to the maximum extent possible, future budgets are unlikely to provide sufficient funding to do so. The DoD base budget has grown from approximately \$510 billion in fiscal year (FY) 2017 (or about \$520 billion in constant FY 2018 dollars) to \$582.3 billion in FY 2018.⁷ The budget would need to grow to \$698 billion by FY 2027 (in constant FY 2018 dollars) in order to pay for items in the base budget today, achieve the Trump administration's goals to modernize U.S. nuclear forces, and modernize and expand conventional military forces.⁸ Over the nine-year period, the cumulative difference between the FY 2018 budget and the funds needed for the Trump administration's plans would be more than \$500 billion. In addition, overseas contingency operations (OCO) were budgeted at \$65.2 billion in FY 2018 and show no clear sign of abating. Figure S.1 shows these projected costs, as well as the Trump administration's proposed increase in the Budget Control Act (BCA) limits on discretionary defense spending through FY 2027.⁹ As shown in the figure, a 2-percent annual real growth in the FY 2018 budget would provide enough

⁶ The organization's name transliterates from Arabic as al-Dawlah al-Islamiyah fi al-'Iraq wa al-Sham (abbreviated as Da'ish or DAESH). In the West, it is commonly referred to as the Islamic State of Iraq and the Levant (ISIL), the Islamic State of Iraq and Syria, the Islamic State of Iraq and the Sham (both abbreviated as ISIS), or simply as the Islamic State (IS). Arguments abound as to which is the most accurate translation, but here we refer to the group as ISIS.

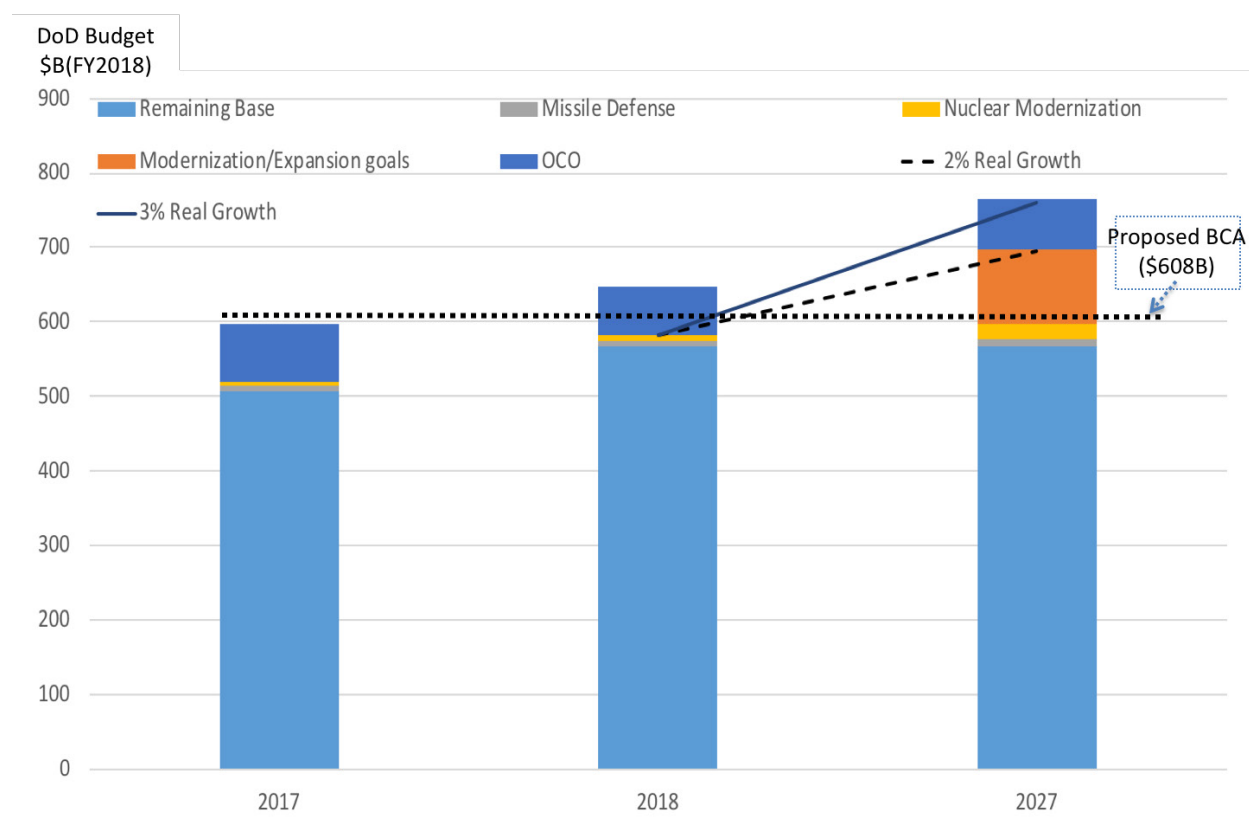
⁷ See Brendan W. McGarry and Pat Towell, *FY2018 Defense Appropriations Act: An Overview*, Washington, D.C.: Congressional Research Service, April 5, 2018.

⁸ Congressional Budget Office, *Analysis of the Long-Term Costs of the Administration's Goals for the Military*, Washington, D.C., December 4, 2017c.

⁹ Lynn M. Williams and Pat Towell, *FY2018 Defense Budget Request: The Basics*, Washington, D.C.: Congressional Research Service, R-44866, June 9, 2017.

funds for both nuclear modernization and the modernization and expansion of conventional forces.¹⁰ A 3-percent annual real growth rate also would provide enough funds for OCO, as long as those costs do not rise further. As noted by former Secretary Mattis in his April 2018 testimony to the Senate, the FY 2018 and 2019 DoD budgets represented 3.1 percent of the U.S. gross domestic product (GDP).¹¹ This is much less than the 5 percent of GDP devoted to DoD during the post–Vietnam War Cold War period, or the 5.7 percent spent in 1985 during the defense buildup during the administration of Ronald Reagan.

Figure S.1. U.S. Military Budget Versus Projected Needs, 2017–2027



SOURCES: Data are from McGarry and Towell, 2018; Congressional Budget Office, 2017c; Williams and Towell, 2017; and Congressional Budget Office, 2017a.

NOTE: \$B (FY2018) = billions in constant FY 2018 dollars.

¹⁰ Congressional Budget Office, *Projected Costs of Nuclear Forces, 2017–2026*, Washington, D.C., February 2017a.

¹¹ U.S. Senate Armed Services Committee, *Secretary of Defense Jim Mattis, Senate Armed Services Committee, Written Statement for the Record, Thursday, April 26, 2018*, Washington, D.C., April 26, 2018.

Modernization Investments

The U.S. Congress may agree to increase appropriations, but each future year is an unknown funding event and it would be unwise to assume that the nation will fund all necessary capabilities and close every important ends-means gap. The U.S. nuclear deterrent and its program to provide missile defenses against limited threats will have the highest priority for modernization investments. Future budgets may not support all of the improvements in conventional force size and capabilities sought by the Trump administration.

However, some additional investments will be needed to make existing forces able to accomplish the Tier 2 missions noted above. At a minimum, U.S. and NATO forces in Europe will need more mobile rocket artillery, a new generation of area-effects weapons, and enough stocks of all types of munitions to wage a lengthy campaign to beat armored Russian forces. In addition, electronic warfare capabilities and short-range air defenses will need to be rebuilt to protect U.S. forces. To kill advanced Russian air defenses, the United States and its NATO allies should develop advance targeting systems, long-range anti-radiation missiles, and surface-to-surface rockets able to strike mobile surface-to-air missile (SAMs) and their radars before they can move. U.S. forces will need smaller-footprint, mobile command and control nodes that can evade Russian targeting and destruction and maintain communications with dispersed units while under electronic attack. To speed the deployment of blunt and surge forces to Europe, the United States should pre-position seven armored brigade equipment sets in Europe (five more than currently planned) in addition to the armored brigade on rotational deployment. Additional equipment sets for infantry brigades, ground support equipment for fighter squadrons, and munitions of all types for ground and air forces also should be deployed.

The United States and South Korea should make additional investments in airborne sensor platforms such as the Global Hawk for wide-area surveillance and the Predator for focused-area targeting. More long-range rocket artillery is needed to hit North Korean forces when they are out of their bunkers and most vulnerable, and more missile defenses are needed to protect cities, theater bases, and air- and seaports. Rocket artillery forces will need area-effects munitions and greater supplies of rockets and munitions than are currently being bought. Advanced sensors that are better able to target fleeting artillery and missile systems in all weather also will be needed.

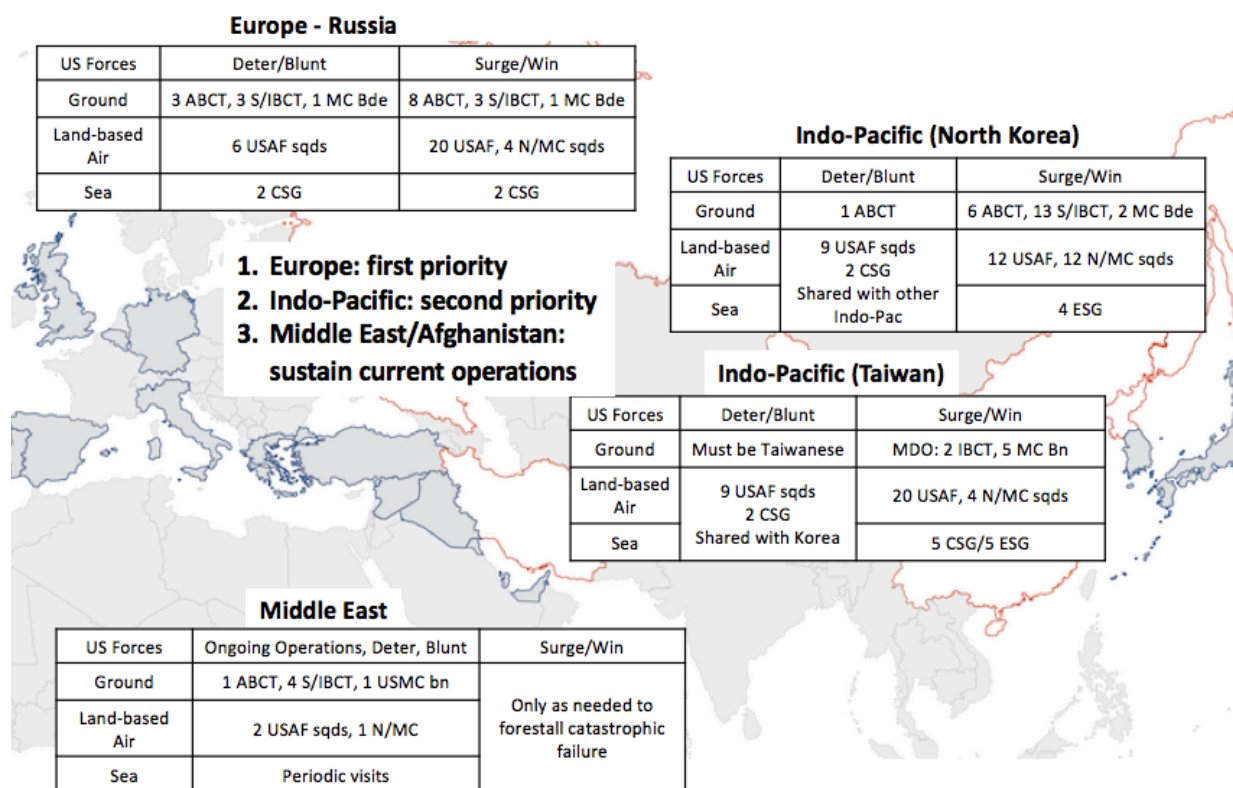
Japan, the Philippines, Taiwan, and other Western Pacific military forces should buy more anti-ship missiles, artillery rockets, and short-range air defenses to protect themselves. These forces should plan to employ such missiles within an operational concept “template” developed with the United States in order to delay an attacker long enough to receive help. Then, U.S. ground forces should be made ready to employ these same multi-domain capabilities to reinforce its allies. The United States also should invest in long-range anti-ship and land-attack cruise missiles that can be launched by heavy bombers to attack invading forces and destroy them once they are halted and isolated.

Global Force Allocation Strategy: One Example

We also assessed what it would take to close defense gaps in each of the primary theaters evaluated in this report with only those forces in existence today. To do so, we work through a notional total force management strategy in Chapter 7 that allocates existing active and reserve component forces to Europe, Korea, and the Western Pacific along with continuing daily operations to counter VEOs and maintain a balance of power in the Middle East and other critical regions. The results of one notional example are shown in Figure S.2.

In order to achieve the NDS objectives, the force must be able to simultaneously deter aggression in Europe, the Indo-Pacific, and the Middle East while enabling the United States and its allies to win one war against a major power in any of these regions. Therefore, this allocation strategy must maintain a strong deterrent posture in all three areas while maintaining the capabilities needed to surge in each. The “Deter/Blunt” forces include forces that would move to the theater on warning or fall onto pre-positioned equipment.

Figure S.2. Notional Global Force Allocation Strategy



NOTES: ABCT = armored brigade combat team. IBCT = infantry brigade combat team. MC = U.S. Marine Corps. Bde = brigade. USAF = U.S. Air Force. sqd = squadron. N/MC = U.S. Navy/U.S. Marine Corps. CSG = carrier strike group. S/IBCT = Stryker/infantry brigade combat team. ESG = expeditionary strike group. MDO = multi-domain operations. Bn = battalion.

It is important to note several significant assumptions in the three vignettes in Figure S.2. First, the force allocations as described would require a complete mobilization of U.S. National Guard and Reserve forces for at least two of these contingencies. A complete mobilization of the reserve components has not been conducted since World War II and is likely to severely strain service garrisoning, training, and equipping capabilities.

Second, and perhaps more importantly, this concept would require that a very high percentage of each service's units be prepared to deploy: 66 percent of active component ground forces, 80 percent of active and reserve component fighter squadrons, and six or more carrier strike groups. Key Army, Marine Corps, and Air Force units would have to be deployed at rates far higher than these services have maintained at any time since World War II.¹² It is unclear at present that the services can actually deploy such a high percentage of these units at the same time.

Third, such a high percentage of force deployments leaves no slack to rest units that are fighting, replace combat casualties, or surge forces to meet a new theater or global challenge.

Ultimately, it may be necessary to opt out of some tasks in Korea and the Middle East in order to conserve strength for Europe or the Western Pacific.

Key Findings

First, more funding will be needed to close the gap between the 2018 DoD budget and the dollars needed to implement the Trump administration's stated security and defense strategy and goals for military modernization. By 2027, the annual gap will have grown to more than \$110 billion, not including funding for OCO, assuming that current overseas operations continue.

Second, future budgets may not support all of the improvements sought by the Trump administration, so prioritization of investments will be necessary. Investments should be prioritized by (1) the importance of the goal to the United States and its interests, (2) the size and urgency of the gap between the capabilities required to achieve U.S. defense objectives and the actual forces ready and postured to provide the capabilities, and (3) the availability of realistic opportunities for the United States, working with its allies, to close these gaps.

Therefore, DoD priorities fall into three tiers. First-tier priorities are to improve U.S. nuclear deterrence; achieve limited ballistic missile defense; and counter terrorist threats to the U.S. homeland, particularly those using WMD. Second-tier DoD priorities should begin with deterring or defeating Russian aggression in the NATO Baltic states; countering North Korean ballistic missile and artillery threats, improving U.S. ability to evacuate its nationals from combat zones, and seizing and securing nuclear weapons if North Korea collapses; and deterring or defeating Chinese aggression against Taiwan if needed. Finally, third-tier DoD priorities should include potential threats that require ongoing attention, but that are less likely to cause a near-term disaster for the United States or its allies and interests. These priorities include countering

¹² Timothy M. Bonds, Michael Johnson, and Paul S. Steinberg, *Limiting Regret: Building the Army We Will Need*, Santa Monica, Calif.: RAND Corporation, RR-1320-RC, 2015.

Chinese coercion of U.S. allies and partners; countering hostile Iranian actions; and continuing to degrade VEOs.

In the event of a major war—such as a Russian attack on the Baltics, a resumption of full-scale warfighting on the Korean Peninsula, or a U.S. decision to come to Taiwan’s defense against China—the U.S. President should mobilize all of the reserve components, including the National Guard and Reserves.

To deter Russia and defend the Baltics, the United States should pre-position the equipment and munitions for eight armored and three S/IBCTs and their supporting forces. Three of these armored sets and supporting forces should be postured to blunt an initial Russian attack, while the remainder should be postured as part of NATO’s reinforcement surge. The United States also should pre-position the ground support equipment for 24 U.S. fighter squadrons. (Although these numbers may seem large compared with current U.S. posture, they are much smaller than the forces the United States maintained in Europe to deter the Soviet Union during the Cold War.) The Army should acquire additional mobile rocket artillery units, rebuild electronic warfare capabilities and short-range air defenses to protect U.S. forces, and develop smaller-footprint, mobile command and control nodes able to survive attack and maintain communications with dispersed units. The Air Force should develop improved targeting systems, long-range anti-radiation missiles, and area-effects munitions able to defeat advanced Russian air defenses. All forces should develop a new generation of area-effects weapons and buy enough stocks of all types of munitions to win a lengthy campaign.

To deter North Korean aggression, the United States should acquire more airborne sensor platforms—such as the Global Hawk for wide-area surveillance and the Predator for focused-area targeting—with advanced sensors to target fleeting artillery and missile systems in all weather; buy more long-range rocket artillery and more rockets with area-effects munitions; and buy and prepare to deploy more missile defenses to protect cities, theater bases, and air- and seaports.

To deter Chinese aggression against—or coercion of—its neighbors, the United States should equip bombers with long-range anti-ship and land-attack missiles; acquire land-based anti-ship missiles, longer-range rocket artillery, and the short-range air defenses to protect both and deploy them in multi-domain-capable ground units; and help Japan, the Philippines, Taiwan, and other friendly military forces develop sufficient A2/AD capabilities of their own to blunt an initial Chinese attack for long enough for U.S. reinforcements to arrive. They should develop these capabilities to be interoperable with U.S. multi-domain forces so that the United States can augment, resupply, or reinforce them as directed.

For all contingencies, DoD should increase the readiness of U.S. forces to the stated service goals or beyond: Ten armored brigades and 45 USAF and 35 U.S. Navy/U.S. Marine Corps fighter squadrons, including expeditionary strike groups and carrier strike groups, should be ready at all times. DoD also should improve the mobilization infrastructure to speed the activation of National Guard and Reserve forces and the training capabilities needed to make all forces in the deployment pipeline ready.

Recommendations for U.S. Allies

NATO, South Korean, and Western Pacific allies and friends all can and must do more to assure their own defense. We recommend the following priority actions:

- NATO nations should increase their air, armor, and supporting forces in order to contribute a greater share to the defense of the Baltics and other vulnerable NATO allies. Over time, the European allies should progressively increase their contribution to half and then to a majority of the needed forces to blunt and defeat an invasion.
- South Korea should end cuts to its army until North Korea has made real progress toward decreasing the threats that it poses with its missile and artillery forces. South Korea also should increase its own missile defenses.
- Japan, the Philippines, and Taiwan should increase their own A2/AD capabilities. These capabilities include mobile, ground-based anti-ship, anti-aircraft, and surface-to-surface missile systems. Doing so would greatly increase their ability to delay and degrade an invasion, were China to decide on such a course, and give the United States and other nations time to come to their aid. As mentioned earlier, Japan, the Philippines, and Taiwan should develop these systems, the forces that use them, and the operational concept for employing them in cooperation with the United States to maximize the ability of the United States to come to their aid.

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Abbreviations

A2/AD	anti-access/area denial
ABCT	armored brigade combat team (U.S. Army)
AC	active component
ASEAN	Association of Southeast Asian Nations
ASuW	anti-surface warfare (U.S. Navy)
ASW	anti-submarine warfare (U.S. Navy)
ATACMS	Army Tactical Missile System
BCA	Budget Control Act
BCT	brigade combat team
BMD	Ballistic Missile Defense
C2	command and control
CBO	Congressional Budget Office
CCP	Chinese Communist Party
CEP	circular error probability
C-ISIS	counter-ISIS
CSG	carrier strike group
CTCs	combat training centers
DMZ	demilitarized zone
DoD	U.S. Department of Defense
DoE	U.S. Department of Energy
DPRK	Democratic People's Republic of Korea
ESG	expeditionary strike group
FY	fiscal year
GCC	Gulf Cooperation Council
GDP	gross domestic product
GIUK	Greenland-Iceland-UK

GMD	ground-based midcourse defense missile
GMLRS	Guided Multiple Launch Rocket System
GRF	Global Response Force
HARM	high-speed anti-radiation missile
HARTS	hardened artillery sites
HIMARS	High Mobility Artillery Rocket System
IBCT	infantry brigade combat team
ICBM	intercontinental ballistic missile
IISS	International Institute for Strategic Studies
IRBM	intermediate-range ballistic missile
ISIS	Islamic State of Iraq and Syria
ISR	intelligence, surveillance, and reconnaissance
JCPOA	Joint Comprehensive Plan of Action
JDAM	Joint Direct Attack Munition
JMRC	Joint Multinational Readiness Center
JRTC	Joint Readiness Training Center
KRG	Kurdistan Regional Government
LRASM	long-range anti-ship missile
LRSA	Long-Range Strike Aircraft
MEB	Marine Expeditionary Brigade
MLRS	multiple launch rocket system
MOP	Massive Ordnance Penetrator
MRL	multiple-rocket launcher
MRBM	medium-range ballistic missile
NDS	National Defense Strategy
NEO	noncombatant evacuation operation
NMS	National Military Strategy
NSS	National Security Strategy
NTC	National Training Center

OCO	overseas contingency operation(s)
ODS	Operation Desert Storm
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
ONE	Operation Noble Eagle
OPLAN	operational plan
OTH	over the horizon
PAC	Patriot Advanced Capability
PLA	People's Liberation Army
PLAN	People's Liberation Army Navy
PRC	People's Republic of China
QDR	Quadrennial Defense Review
RC	reserve component
RCS	radar cross-section
ROK	Republic of Korea
SAM	surface-to-air missile
SBCT	Stryker brigade combat team
SDB	small-diameter bomb
SDF	Syrian Democratic Forces
SEAD	suppression of enemy air defenses
SLBM	submarine-launched ballistic missile
SLCM	sea-launched cruise missile
SMA	Seoul Metropolitan Area
THAAD	Terminal High Altitude Area Defense
TST	time-sensitive target
UAE	United Arab Emirates
UN	United Nations
USAF	U.S. Air Force
USN	U.S. Navy

VEO	violent extremist organization
VHRJTF	Very High Readiness Joint Task Force
WMD	weapon(s) of mass destruction
WMD-E	weapons of mass destruction-elimination

1. Introduction

All Presidential administrations are charged with protecting the people and territory of the United States and securing its interests. Since 1986, Presidents have been required by the Goldwater-Nichols Defense Department Reorganization Act to articulate their strategies to protect the nation in a national security strategy document.¹³

President Donald Trump's 2017 National Security Strategy (NSS) emphasized defending against weapons of mass destruction (WMD), including counter-proliferation and building a layered missile defense system, and defeating terror threats at their sources. It also stressed the importance of U.S. nuclear forces in deterring aggression.¹⁴ It also prioritized increasing and modernizing U.S. forces and ensuring force readiness.

In January 2018, the U.S. Department of Defense (DoD) published the National Defense Strategy (NDS) to describe how it would support the NSS.¹⁵ The 2018 NDS replaced DoD's previous strategy document, the Quadrennial Defense Review (QDR). Unlike the QDR, the NDS is classified.

However, an unclassified summary identifies long-term strategic competition with China and Russia as the central challenge to U.S. security and DoD's principal priority. In unveiling the strategy, then-U.S. Secretary of Defense James Mattis declared,

Our competitive edge has eroded in every domain of warfare, air, land, sea, space and cyberspace, and it is continuing to erode.¹⁶

The NDS states DoD's intent to counter North Korea and Iran and defeat terror threats to the United States in peacetime. In wartime, the 2018 NDS directs that U.S. military forces should be ready to

deter aggression in three key regions—the Indo-Pacific, Europe, and Middle East; degrade terrorist and WMD threats; and defend U.S. interests from challenges below the level of armed conflict. In wartime, the fully mobilized Joint Force will be capable of: defeating aggression by a major power; deterring opportunistic aggression elsewhere; and disrupting imminent terrorist and WMD threats. During peace or in war, the Joint Force will deter nuclear and non-nuclear strategic attacks and defend the homeland. To support these missions, the

¹³ Public Law 99-433, Goldwater-Nichols Defense Department Reorganization Act, October 1, 1986.

¹⁴ The White House, *National Security Strategy of the United States of America*, Washington, D.C., December 2017c.

¹⁵ DoD, *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge*, Washington, D.C., January 19, 2018a.

¹⁶ James N. Mattis, "Remarks by Secretary Mattis on the National Defense Strategy," transcript, U.S. Department of Defense, January 19, 2018.

Joint Force must gain and maintain information superiority; and develop, strengthen, and sustain U.S. security relationships.¹⁷

The forces available to implement these new strategies, however, are the product of the 2014 QDR's "win-deny" force-sizing construct. Like the NDS, the 2014 QDR planned to deter aggression in multiple regions, but it planned a force able to defeat a regional adversary rather than a major power. According to the 2014 QDR,

[i]f deterrence fails at any given time, U.S. forces could defeat a regional adversary in a large-scale multi-phased campaign, and deny the objectives of—or impose unacceptable costs on—another aggressor in another region.¹⁸

A key difference between the 2014 QDR and the 2018 NDS was the expansion of DoD's mission from defeating a "regional adversary" to "defeating aggression by a major power." Planning to defeat one regional adversary aims far too low if the U.S. military is now intended to meet a peer or near-peer Russian military threat in Europe or a Chinese military threat in the Asia-Pacific. Moreover, the NDS directs the Joint Force to be ready to deter opportunistic aggression in three regions simultaneously, whereas the 2014 QDR plans for only a second aggressor in a second region. So, as one example, if the first act of aggression was a North Korean attack on South Korea, the 2014 QDR would not provide sufficient forces to deter both Russian aggression in the Baltics and Chinese aggression against Japan or Taiwan.

The 2014 QDR construct was the result of several assumptions after the Cold War that ultimately became untenable. These assumptions were

- significant forces to defeat aggression in Europe were no longer needed, the force-sizing driver on the Korean Peninsula remained a North Korean ground invasion, and existing U.S. military concepts and capabilities would be sufficient to deny adversary objectives or impose unacceptable costs in the Asia-Pacific
- it would be possible to retain air-sea dominance in the Asia-Pacific region despite improving Chinese anti-access/area denial (A2/AD) capabilities
- the United States would withdraw combat forces from Iraq and Afghanistan and not reintroduce them in either nation
- significant U.S. ground forces would not be required to conduct protracted stability operations, secure WMD, or deter continued threats in such places as the Persian Gulf.

Geopolitical changes now negate all of these assumptions. Russia and China seek to control a sphere of influence including the territory or exclusive economic zones of U.S. allies and partners. Russia has invaded Ukraine, annexed Crimea, and threatened to escalate to the use of nuclear weapons in future wars against NATO. The trajectory of U.S.-Russian relations is a particularly salient case. The 2014 QDR was published after Russia's invasion, but the analysis and writing were largely completed before the invasion, with some revisions made to reflect emerging Russian aggression. See the appendix for a short overview of U.S.-Russia relations.

¹⁷ DoD, 2018a, p. 6.

¹⁸ DoD, *Quadrennial Defense Review 2014*, Washington, D.C., March 4, 2014, p. 22.

China declared an air defense identification zone (ADIZ) over the Senkaku/Diaoyu islands in 2013 and has maintained it since then. It has used paramilitary forces to reshape its maritime boundaries and increased its air, sea, and ground forces on islands that it is building in the South China Sea. To neutralize U.S. military strength and raise the costs of U.S. intervention, Russia and China have developed modern air defenses and anti-ship missile systems that together constitute significant A2/AD capabilities. Continuing cyberattacks raise the prospect of sustained assaults on critical military, commercial, and political information networks.

Regional powers like North Korea and Iran also pose increased threats of conventional aggression and irregular coercion, as well as the potential risks of nuclear proliferation, transfer, or loss of control. North Korea has improved and tested its nuclear weapons and long-range ballistic missiles and can threaten South Korea with its long-range artillery and vast stocks of chemical weapons. Iran is provoking tensions among its neighbors by supporting violent extremist organizations (VEOs) in the Middle East, backing rebels in Yemen, and advancing its missile capabilities.

The Islamic State of Iraq and Syria (ISIS) demonstrated the military capability to control territory, becoming a quasi-state that further destabilized Iraq and Syria, committing atrocities against civilians that caused mass refugee flows, and supporting global terror attacks.¹⁹ Although ISIS has been cast out of such key strongpoints as Mosul and Raqqa by partners that the United States supported (including with combat forces), the prospects for a stable political transition remain dim. In Afghanistan, the Taliban (with diminished al Qaeda support) continues to contest U.S. objectives and the stability of the government.²⁰ U.S. forces remain in Afghanistan and Iraq and are running combat operations in Syria that butt up against Russian support for the Bashar al-Assad regime.

The National Defense Strategy Commission summarizes the resulting situation starkly:

The security and wellbeing of the United States are at greater risk than at any time in decades. America's military superiority—the hard-power backbone of its global influence and national security—has eroded to a dangerous degree. Rivals and adversaries are challenging the United States on many fronts and in many domains. America's ability to defend its allies, its partners, and its own vital interests is increasingly in doubt. If the nation does not act promptly to remedy these circumstances, the consequences will be grave and lasting. . . . Authoritarian competitors—especially China and Russia—are seeking regional hegemony and the means to project power globally. They are pursuing determined military buildups aimed at neutralizing U.S. strengths. Threats posed

¹⁹ The organization's name transliterates from Arabic as al-Dawlah al-Islamiyah fi al-'Iraq wa al-Sham (abbreviated as Da'ish or DAESH). In the West, it is commonly referred to as the Islamic State of Iraq and the Levant (ISIL), the Islamic State of Iraq and Syria, the Islamic State of Iraq and the Sham (both abbreviated as ISIS), or simply as the Islamic State (IS). Arguments abound as to which is the most accurate translation, but here we refer to the group as ISIS.

²⁰ Thomas Joscelyn and Bill Roggio, "Are We Losing Afghanistan Again?" *New York Times*, October 21, 2015.

by Iran and North Korea have worsened as those countries have developed more advanced weapons and creatively employed asymmetric tactics.²¹

The Strategy-Resource Mismatch

This deterioration in the security environment—together with budget sequestration and more than 17 years of war against irregular threats—has created a mismatch between U.S. strategy and the means to accomplish strategic goals. Under the Budget Control Act (BCA), cumulative reductions in standing forces and modernization have placed additional risk on both the military (in terms of the number of forces that would be needed and the casualties and other damage to military forces that might be incurred in their operations) and the nation (because the military might not be able to accomplish its assigned missions with the forces and capabilities provided).

Based on estimates from the Congressional Budget Office (CBO), we project a cumulative strategy-resource mismatch of more than \$500 billion over the nine-year period from fiscal year (FY) 2018 through FY 2027 in Chapter 7 of this report. Although the 2017 increases enacted under the Trump administration have helped to close the gap in FY 2018, further increases would be needed each year to meet the force size and modernization objectives of the Trump administration.²²

Absent a change in administration policy or a new political consensus in favor of a defense buildup, there will not be enough forces to close the gap between stated U.S. aims and the cost of achieving them. This leaves the Trump administration and this Congress with some difficult choices. The United States could decide to focus primarily on its own security, devoting to allies and partners only those forces and resources that could be easily spared from self-defense. At the other end of the spectrum, the Trump administration could take the central role in defending U.S. allies against aggression by Russia, China, and other potential adversaries if more resources are provided. The hard-to-find middle ground would be to provide the military with sufficient capabilities to ensure that aggression that imperils U.S. vital interests in critical regions would fail, while helping allies build the capacity to do more for their own and the collective defense. In this report, we analyze the alternatives for charting such a middle course.

Analytic Assumptions, Objectives, and Methods

This analysis proceeds with the assumption that the posture and ability of one nation to threaten another will change slowly and that the Trump administration, as well as its successors through 2027, will continue to advance the broad goals and objectives stated in the current NSS

²¹ Eric Edelman, Gary Roughead, Christine Fox, Kathleen Hicks, Jack Keane, Andrew Krepinevich, Jon Kyl, Thomas Mahnken, Michael McCord, Michael Morell, Anne Patterson, and Roger Zakheim, *Providing for the Common Defense: The Assessment and Recommendations of the National Defense Strategy Commission*, Washington, D.C.: United States Institute of Peace, November 13, 2018, p. v.

²² Lynn M. Williams and Pat Towell, *FY2018 Defense Budget Request: The Basics*, Washington, D.C.: Congressional Research Service, R-44866, June 9, 2017.

and the NDS. Conflicts, such as Russia’s invasion of Ukraine, might suddenly erupt, and new peace initiatives, such as the warming of relations between North and South Korea, could reduce tensions. In the face of such developments, the United States must determine the degree to which it has an interest in the security of other nations around the world and whether and how it would become involved. Each U.S. administration could shift its strategy toward contributing more or less to the security of its allies and partners. Indeed, the Trump administration has changed direction, as demonstrated by the December 2018 orders to leave Syria and reduce troop levels in Afghanistan.²³ In this analysis, we assume that the general world situation and the U.S. approach to it, will proceed over the next decade largely along the lines described in the most recent strategy documents.

This analysis, then, has three objectives: to (1) identify gaps between U.S. security policy and U.S. military capabilities and capacity; (2) propose a framework for prioritizing resource allocation; and (3) identify combinations of near-term investments in military capabilities, technical innovations, and new geopolitical initiatives and concepts that together could reduce an adversary’s opportunities. In particular, we assess the degree to which the military that exists today—with some changes in strategy, posture, and equipment—could be sufficient to secure the United States and contribute to the defense of vulnerable allies and partners. This assessment concludes with alternatives to address the remaining gaps.

The RAND team focused on the following defense priorities identified in the NSS and NDS:

1. deterring nuclear attacks against the United States and defending the homeland against other current and emerging threats
2. deterring or defeating aggression against the most vulnerable U.S. allies or interests, specifically, Baltic NATO allies, South Korea, and Taiwan
3. countering an adventurous, coercive, or aggressive China; degrading and defeating ISIS, al Qaeda, and other similar VEOs; and countering Iranian coercion or aggression.

For each area of strategic interest, the RAND team assessed the U.S. military capacity and capabilities required to defeat credible threats and the contributions that could or should be expected from friends and allies in their own and the collective defense.

To conduct this analysis, the RAND team utilized the results of wargames and analyses documented in recent RAND reports, original analyses by the authors, and primary and secondary sources as cited throughout this report.

²³ Barbara Starr, Ryan Browne, and Nicole Gaouette, “Trump Orders Rapid Withdrawal from Syria in Apparent Reversal,” CNN, December 19, 2018; Josh Lederman and Dan De Luce, “In Syria and Afghanistan, Trump at Odds with His Own Past Views,” NBC, December 24, 2018. The Syria withdrawal too has since been modified and may now be only a partial withdrawal.

Organization of This Report

In Chapter 2, we review the wide range of military missions that the United States conducts and attempt to set priorities among them.²⁴ We also highlight the investments needed for homeland defense missions and the budgetary tensions these investments will cause for the forces and resources available for defending U.S. allies.

In Chapter 3, we analyze the vulnerability of the Baltic states to attack by Russia and assess the costs and risks of alternative NATO and U.S. approaches to deter or defeat Russian aggression. We have chosen this as our first case study because the size and capability of Russia's nuclear forces pose a uniquely existential threat to the United States and its allies should war break out. We include a brief overview of U.S.-Russia relations in the appendix to this report.

In Chapter 4, we consider the dangers posed by a North Korean attack or a political and economic implosion. The dangers of either are aggravated now that North Korea is on a path to assemble a considerable nuclear arsenal and may be close to having the means to deliver such weapons at long ranges. We consider combined U.S.–Republic of Korea (ROK) options to mitigate the effects of North Korean artillery attacks and the responses that may be required should the Democratic People's Republic of Korea (DPRK) collapse.

In Chapter 5, we focus on the problems posed by an assertive—and perhaps aggressive—China in the Western Pacific. We consider options to mitigate the Chinese threat to Taiwan and U.S. treaty allies Japan and the Republic of the Philippines.

In Chapter 6, we turn to the Middle East and Afghanistan and examine the potential of various bad actors, including Iran and violent extremist groups, to foment conflicts. We consider the continuing security contributions that may be required from the United States.

In Chapter 7, we present alternatives for addressing the gaps between U.S. ambitions and capabilities. We compare the defense pledges and policies of the administration of President Trump with the budgets available to determine whether the means exist to provide military forces that are able to meet these priority challenges. We also review the investment and funding outlook, the available forces and capabilities, and the alternatives for meeting urgent priorities with available forces. Finally, we present three alternative scenarios for how DoD might allocate its global forces to accomplish its missions.

We found significant technological, doctrinal, and budgetary gaps between the stated strategic and defense policies of the United States and the resources and capabilities that would be required to implement those policies successfully. We summarize these conclusions and offer recommendations in Chapter 8.

²⁴ Since the Cold War, security strategy documents tend to include some form of “presence,” “stability” or “stabilizing,” or “balance” or “balancing” objectives in association with regular missions abroad.

2. U.S. Military Missions and How to Prioritize Them

The U.S. military cannot be everywhere in the world all the time and, as this report will show, it is unlikely that the U.S. government will be able to provide the resources needed to counter every potential threat everywhere in the world over the next decade. Nor should it: All threats are not equal, and a successful defense strategy prioritizes threats and the allocation of resources accordingly. Therefore, in this chapter, we analyze how DoD should prioritize missions based on the administration's stated definitions of national interests, its strategy and defense documents, the promises it has made to U.S. allies, and the urgency and severity of current threats.

Overview of U.S. Defense Objectives and Military Missions

The 2018 NDS describes 11 objectives in providing for the defense of the United States and its allies, partners, and interests.²⁵ We have reordered these objectives slightly to begin with those objectives that are most clearly associated with defending the people, territory, and institutions of the United States. Defense objectives are

1. dissuading, preventing, or deterring state adversaries and nonstate actors from acquiring, proliferating, or using WMD
2. defending the homeland from attack
3. preventing terrorists from directing or supporting external operations against the United States homeland and our citizens, allies, and partners overseas
4. deterring adversaries from aggression against U.S. vital interests
5. sustaining Joint Force military advantages, both globally and in key regions
6. enabling U.S. interagency counterparts to advance U.S. influence and interests
7. defending allies from military aggression, bolstering partners against coercion, and fairly sharing responsibilities for common defense
8. maintaining favorable regional balances of power in the Indo-Pacific, Europe, the Middle East, and the Western Hemisphere
9. ensuring that common domains remain open and free
10. delivering continuous performance with affordability and speed while updating DoD's mindset, culture, and management systems
11. establishing an unmatched National Security Innovation Base that supports DoD operations and sustains security and solvency.

²⁵ DoD, 2018a, p. 4. These objectives are fairly similar to the military missions that GEN Martin Dempsey, then-Chairman of the Joint Chiefs of Staff, defined in the 2015 National Military Strategy (See Chairman of the Joint Chiefs of Staff, *The National Military Strategy of the United States of America 2015: The United States Military's Contribution to National Security*, Washington, D.C., June 2015). We have reordered this list somewhat to distinguish between objectives that directly affect the United States, those that concern its alliances and friends, and those that affect global norms and stability.

The 2018 NDS outlines a force planning construct:

During normal day-to-day operations, the Joint Force will sustainably compete to: deter aggression in three key regions—the Indo-Pacific, Europe, and Middle East; degrade terrorist and WMD threats; and defend U.S. interests from challenges below the level of armed conflict. In wartime, the fully mobilized Joint Force will be capable of: defeating aggression by a major power; deterring opportunistic aggression elsewhere; and disrupting imminent terrorist and WMD threats. During peace or in war, the Joint Force will deter nuclear and non-nuclear strategic attacks and defend the homeland.²⁶

Setting Priorities

Next, we propose a list of priorities that align with these NDS objectives while recognizing that not all missions can be sustained simultaneously at foreseeable funding levels.

There are many possible criteria for such prioritization, including

- the degree of self-interest that the United States has in deterring or defeating a potential aggressor
- the degree of commitment the United States has extended to allies and partners by treaty, agreement, or in other policy statements
- assessments of the severity of various threats, including the civilian casualties and damage that could be inflicted on the United States or its allies by potential aggressors
- the urgency of especially severe threats, including the time available for the United States and its allies to respond to a short-warning attack
- the degree to which U.S. forces would or could provide the decisive element in defeating aggression against an ally, partner, or friend.

Full discussions of these considerations appear in the chapters that follow. Based on current administration strategy and defense documents, as well as policy statements and threat assessments, we suggest three tiers of mission prioritization.

Tier 1 Priorities: Deter nuclear attack and defend the U.S. homeland and its people. The utmost priority is to deter nuclear attack by a state adversary. DoD must deter, and prepare to defend the homeland from, conventional strategic attacks, cyberattacks, and terrorist attacks. DoD also must prevent the use of other mass-casualty weapons by terrorists or other malicious actors. This requires prioritizing the ability to seize unsecured nuclear material if it is in danger of being lost, stolen, or transferred to terrorist groups.

Tier 2 Priorities: Defend U.S. allies and interests against the most severe and urgent threats. Tier 2 priorities seek to deter aggression by a major power against the allies to which the United States has extended the highest-level commitments and that face the most severe and urgent threats from potential adversaries. At present, the NATO Baltic and South Korea treaty allies fall into this category. Taiwan, although not an ally, is at risk of a precipitous attack. Though it has not committed itself to Taiwan's defense, the United States has signaled enough

²⁶ DoD, 2018a, p. 6.

interest to merit Taiwan’s inclusion as a Tier 2 priority. The NDS obliges DoD to be capable of defeating aggression by one major power in one area while deterring opportunistic aggression elsewhere. We therefore place priority in this report on helping key allies or partners withstand attacks until reinforcements can arrive and helping to surge sufficient capabilities to defeat the aggressor.

Tier 3 Priorities: Deter aggression and defend broader U.S. interests. Tier 3 priorities are to deter regional aggression and help those allies facing less severe and/or less urgent threats to defend themselves. These priorities seek to degrade and defeat insurgencies and terrorist threats in ongoing operations and to help advance U.S. global interests in stability and security below the level of armed conflict.

Table 2.1. U.S. Defense Priorities, Missions, and Needed Actions

Priority	Mission	Strategy	Action Needed
Tier 1	Deter attack by nuclear states	• Massive response	• Modernize U.S. nuclear arsenal and delivery systems
	Defeat limited ballistic missile attacks	• Ballistic missile defense (BMD)	• Improve and grow missile defenses
	Pre-empt terror attacks; especially with WMD	• Detect, degrade, destroy terror cells • Interdict transfer of nuclear weapons or materials; seize loose nukes	• World-wide intelligence, special operations efforts • Organize, train, and equip units to find, seize, secure loose nukes
Tier 2	Deter Russian aggression in the Baltics	• Posture force able to blunt initial attack and surge reinforcements to win	• Return some air and heavy ground units to Europe as blunt force. • Modernize and pre-position equipment for “surge” reinforcements
	Deter North Korean missile and artillery attack	• Credible RoK-US counter-fire, counter-offensive and NEO capabilities	• Help RoK strengthen civilian and military defenses, counter-fires capabilities, air-ground counter-offensive and NEO capabilities
	Deter Chinese invasion of Taiwan	• Credible Taiwanese defense able to blunt attack; US ability to surge reinforcements	• Help Taiwan strengthen its “Blue A2/AD” defenses • Improve U.S. ability to reinforce and assist Taiwan should China attack
Tier 3	Counter Chinese coercion against Japan, Philippines	• Help Japan, Philippines build defenses • Combined-force exercises to counter potential Chinese attacks	• Strengthen allied air, maritime, and ground defenses • Organize, train, and equip combined units to defeat Chinese attacks
	Deter Iranian aggression	• Help Persian Gulf partners build defenses • Exercise forces to counter Iranian attacks	• Strengthen partner air, missile, and maritime defenses • Organize, train, and equip units to defeat Iranian A2/AD
	Defeat violent extremist organizations	• Degrade violent extremist organizations and deny them opportunities to attack	• Help allies and partners build their capacity to resist and defeat VEOs

NOTE: NEO = noncombatant evacuation operation.

Tier 1 Priorities: Deter Nuclear Attack and Defend the U.S. Homeland and Its People

The foremost mission of DoD is the security of the U.S. homeland and people. Therefore, the highest-priority DoD missions are deterring state adversaries from attacking the United States using nuclear, conventional, or cyber weapons; preventing the use of WMD, particularly nuclear and biological weapons that could cause mass casualties; defending the homeland if deterrence fails; and preventing terrorist attacks. These missions may be conducted within or from the U.S.

homeland or overseas with the goal of preventing or preempting threats against the homeland. We presume that these missions will continue to be the first to receive personnel, funding, and other resources as needs are identified.

Deter State Adversaries from Using Nuclear Weapons

At present, nuclear weapons pose the one truly existential threat to the United States. Deterring nuclear attack against the United States is the single most important mission of the U.S. armed forces because the consequences of a nuclear attack against the homeland would be catastrophic. Even a relatively small, 10-kiloton weapon striking a U.S. city could result in 100,000 casualties—from the immediate blast, thermal and radiation effects, and the longer-term effects of radiation exposure.²⁷ Many more casualties could result from the disruption of water, food, power, and other life-supporting infrastructure.

Russia possesses the most powerful nuclear arsenal among all potential adversaries, with nearly 7,000 nuclear weapons; an estimated 1,600 of these are “placed on missiles or located on bases with operational forces.” Therefore, as remote as the likelihood might seem, deterring a nuclear attack by Russia is the top defense priority. Deterring China, which has an estimated 280 nuclear weapons, is the second priority.²⁸

Both Russia and China have the means to deliver nuclear strikes on the U.S. homeland from ballistic missiles fired from submarines and mobile land launchers, cruise missiles fired from these platforms, and long-range bombers. Both nations could build and launch enough missiles with nuclear weapons and decoys to defeat any practical defense that the United States could deploy for the foreseeable future. Therefore, deterrence depends on the U.S. ability to deliver a devastating counterstrike. The ability to massively retaliate is provided by modern, reliable, and effective nuclear weapons and the means to employ them. The U.S. Department of Energy (DoE) provides the nuclear weapons and DoD provides a triad of systems to deliver them: submarine-launched ballistic missiles (SLBMs), nuclear-capable long-range bombers, and intercontinental ballistic missiles (ICBMs).

President Trump has stated his intention of ensuring that the U.S. nuclear arsenal is at the “top of the pack.”²⁹ To ensure qualitative superiority, both the U.S. nuclear weapon stockpile and the triad built to deliver nuclear weapons need to be modernized. The U.S. Navy (USN) has begun developing the *Columbia*-class submarine program to replace the current *Ohio*-class submarine fleet. The CBO estimated that this program will cost \$313 billion over the next 30

²⁷ U.S. Department of Homeland Security, “Nuclear Attack Fact Sheet,” Washington, D.C., February 19, 2019.

²⁸ Estimates for Russia and China come from Stockholm International Peace Research Institute (SIPRI), *SIPRI Yearbook 2018: Armaments, Disarmament, and International Security*, Oxford, UK: Oxford University Press, 2018a; and SIPRI, “Modernization of Nuclear Weapons Continues; Number of Peacekeepers Declines,” press release, June 18, 2018b.

²⁹ Steve Holland, “Trump Wants to Make Sure U.S. Nuclear Arsenal at ‘Top of the Pack,’” Reuters, February 23, 2017.

years.³⁰ The Air Force is planning a new stealthy Long-Range Strike Aircraft (LRSA, also known as the B-21) to replace the B-52 and B-2 in the nuclear delivery role. Although the cost of this program is classified, the CBO recently estimated the cost of all nuclear-capable bombers at \$266 billion over the next 30 years (this cost includes their non-nuclear missions).³¹ Finally, the Air Force has begun plans for replacing the aging Minuteman III ICBM. The CBO's estimate for the cost of the ICBM fleet and its modernization is \$149 billion.³² DoE will incur additional costs over the next 30 years as it attempts to maintain a safe and reliable nuclear stockpile and to perform other modernization and remanufacturing activities to extend the lives of nuclear weapons, enhance their performance, and improve their safety. The CBO estimated that these DoE activities will cost another \$305 billion. The total 30-year cost of the nuclear deterrent, including these activities, is estimated to be \$1.242 trillion over the next 30 years.³³

Much of this cost would have been required to sustain existing nuclear forces, provide incremental upgrades over this period, and support the DoE enterprise and the nuclear weapons it must maintain. The CBO estimates that the bill to modernize America's nuclear forces over and above the cost of sustaining and incrementally improving current systems will be \$400 billion over this 30-year period.³⁴ These modernization costs will rise from an estimated \$5 billion in FY 2017 (presumably to begin the bomber; submarine; land- and sea-based missile; and nuclear weapons modernization programs) to \$22 billion annually from 2027 through 2035 and then level off to about \$5 billion again in 2039. Inevitably, nuclear modernization will compete for funding with other military and intelligence needs. (We will return to these budgetary numbers in Chapter 7.)

The \$400 billion modernization bill could be reduced somewhat if DoD were willing to accept reduced capabilities. The CBO estimates that up to \$71 billion could be saved over the next 30 years if DoD went to a dyad of land-based ICBMs and SLBMs, eliminated bombers as a nuclear delivery platform (while retaining them for conventional warfighting only), and reduced the acquisition of B-21 bombers by 20. Alternatively, up to \$120 billion could be saved if DoD went to a dyad of nuclear bombers and SLBMs and dropped the acquisition of a new land-based ICBM and retired this leg of the current triad. Even more—up to \$139 billion—could be saved if the United States cut the number of nuclear warheads from the New START limit of 1,550 to 1,000 and eliminated the ICBM force.³⁵

However, each of these options reduces the capabilities of the United States' most important military forces. Eliminating bombers or land-based missiles reduces the target set an adversary

³⁰ CBO, *Approaches for Managing the Costs of U.S. Nuclear Forces, 2017 to 2046*, Washington, D.C., October 2017b, p. 2. Arguments have been raised that the nuclear delivery triad could be replaced by a dyad of SLBMs and bombers.

³¹ CBO, 2017b, p. 2.

³² CBO, 2017b, p. 2.

³³ CBO, 2017b, p. 2.

³⁴ CBO, 2017b, p. 1.

³⁵ CBO, 2017b, pp. 40–49.

would need to destroy in a first strike to gain an overwhelming nuclear advantage and also would reduce the total strike capacity of U.S. nuclear forces. Such cuts might imperil the real or perceived capability of the U.S. nuclear deterrent. Given that the maximum savings would average about \$4.6 billion per year over the next 30 years, or \$139 billion in all, it may not be wise to make such cuts absent reciprocal cuts in Russian and Chinese nuclear capabilities.

Prevent the Acquisition or Proliferation of WMD

A growing threat is the proliferation of nuclear weapons to hostile foreign powers or the transfer of such weapons to terror groups. Although it may be unlikely that a nuclear state would give a complete weapon to another state or a violent extremist group, it may be possible to steal weapons from a failed nuclear state. The George W. Bush, Obama, and Trump administrations observed the particularly grave threat that WMD—especially nuclear weapons—could pose to the homeland if they fell into the hands of violent extremists. For example, according to the 2015 National Military Strategy (NMS),

[n]uclear, chemical, and biological agents pose uniquely destructive threats. They can empower a small group of actors with terrible destructive potential. Thus, combatting WMD as far from our homeland as possible is a key mission for the U.S. military. Toward that end, we team with multinational and U.S. interagency partners to locate, track, interdict, and secure or destroy WMD, its components, and the means and facilities needed to make it, wherever possible.³⁶

After the fall of the Soviet Union, there was concern that Russia, Kazakhstan, Belarus, and Ukraine might not be able to maintain state control of their nuclear arsenals. The United States made significant investments to help Russia improve the security of its weapons; encouraged Kazakhstan, Belarus, and Ukraine to transfer their arsenals back to Russia; and cooperated with Russia in a program aimed at preventing former Soviet nuclear scientists from going to work for other nations.

As we will discuss in Chapter 4, North Korea is projected to have between 20 and 100 nuclear weapons by 2020.³⁷ If the DPRK regime collapsed—and with it, military control of its nuclear arsenal—these weapons might be stolen or transferred to VEOs.

Recent analyses estimate that it would take approximately 188,000 to 250,000 troops on the ground to find, secure, seize, and remove nuclear weapons and related materials from a collapsed North Korea.³⁸ These troops include the forces needed to seize and secure suspected nuclear sites in the presence of remnants of DPRK military units, the specialized units searching nuclear sites, and the logistics and supporting forces needed to protect and sustain a large and complex

³⁶ Chairman of the Joint Chiefs of Staff, 2015, pp. 11–12.

³⁷ David Albright, *Future Directions in the DPRK's Nuclear Weapons Program: Three Scenarios for 2020*, Baltimore, Md.: U.S.-Korea Institute at the Paul H. Nitze School of Advanced International Studies, Johns Hopkins University, 2015.

³⁸ Timothy M. Bonds, Eric V. Larson, Derek Eaton, and Richard E. Darilek, *Strategy-Policy Mismatch: How the U.S. Army Can Help Close Gaps in Countering Weapons of Mass Destruction*, Santa Monica, Calif.: RAND Corporation, RR-541-RC, 2014.

operation across a hostile North Korea. Additional air, sea, and ground forces would be needed to interdict ships and aircraft attempting to leave North Korea; monitor the border to prevent smuggling into China or Russia; and deter armed opposition to U.S. operations. This does not include the South Korean, U.S., and other allied forces that would be needed to deal with the humanitarian catastrophe that would almost certainly follow a DPRK regime collapse.

This is a very large body of troops—roughly equivalent in size to the ground forces the United States deployed to Operation Iraqi Freedom (OIF). When contemplating whether the United States would ever conduct such an operation, it is useful to consider the potential consequences of not doing so: Once nuclear weapons are obtained by terror groups, illicit entry into the United States by ground, air, or sea—perhaps by similar routes as those used by drug traffickers—would put the U.S. homeland at risk of nuclear terrorism. As difficult as a North Korean counter-WMD operation would be, it would be far more difficult to safeguard U.S. people and territory from attack if these weapons proliferated to terror groups worldwide. That is, it would be easier to secure nuclear weapons or components concentrated at dozens of known or suspected sites in North Korea than to search for weapons spread to hundreds or thousands of potential sites around the world. Likewise, it would be easier to conduct operations in one state made accessible by the collapse of its government in an operation for which an international mandate could be obtained than to operate in many places around the world, each of which could be closed or difficult to access. For these reasons, “loose nukes” are best collected at their source.

In this analysis, we treat securing nuclear weapons actually lost by North Korea, or any other state, as a Tier 1 priority. We treat preparing for the potential collapse of North Korea, and its potential loss of nuclear weapons, as a Tier 2 priority. We will assess operations to seize and secure nuclear weapons in a failed state in Chapter 4 with North Korea as an example, and arguably the most urgent case. As nuclear weapons proliferate to additional states, or if such current nuclear states as Pakistan exhibit increased instability, examination of additional cases may be warranted.

Although we do not examine biological agents in detail in this report, the Trump administration has observed that they could become a more severe threat. The National Biodefense Strategy states that

[b]iological threats—whether naturally occurring, accidental, or deliberate in origin—are among the most serious threats facing the United States and the international community. Outbreaks of disease can cause catastrophic harm to the United States.³⁹

Furthermore, the National Biodefense Strategy warns that

[m]ultiple nations have pursued clandestine biological weapons programs and a number of terrorist groups have sought to acquire biological weapons. In many countries around the world, pathogens are stored in laboratories that lack

³⁹ The White House, *National Biodefense Strategy 2018*, Washington, D.C., 2018, p. i.

appropriate biosecurity measures where they could be diverted by actors who wish to do harm.⁴⁰

Therefore, the threat of biological agents could be a focus of additional research in the next few years.

Defend the Homeland from Conventional Attack or Cyberattack

Defending the homeland from attack requires a military able to defend against air and limited ballistic missile attacks, protect cyber systems and physical infrastructure, and interdict terror groups abroad that are preparing imminent attacks. Achieving these goals requires having resilient space-based and terrestrial indication and warning systems; an integrated intelligence collection, analysis, and dissemination architecture; a ground-based missile interceptor force; a cyber mission force; and ready ground, air, and naval forces.

Early Trump Administration policy guidance stated that the United States will “develop a state-of-the-art missile defense system to protect against missile-based attacks from states like Iran and North Korea.”⁴¹ As stated earlier, the United States cannot intercept the many nuclear weapons that could be launched by Russia or China. However, the United States has built a limited ability to defend against a few ballistic missiles fired by states possessing a small arsenal. North Korea and Iran are typically discussed as nations that fall into this latter category, although Iran has not yet demonstrated possession of a nuclear weapon and neither country has demonstrated possession of an ICBM with a warhead delivery capability.

Maintaining a ballistic missile defense capability against even small powers requires a continuing program to improve, evolve, and extend system capabilities. The United States is in the process of fielding a combined 44 ground-based midcourse defense (GMD) missiles at Vandenberg Air Force Base in California and Fort Greely in Alaska to intercept missiles launched from North Korea. Former Secretary of Defense Mattis announced plans to increase this force to 64 missiles with an additional missile field in Alaska.⁴² The USN operates shipboard air and ballistic missile defenses hosted on Aegis cruisers and destroyers and the U.S. Army operates 40 Terminal High Altitude Area Defense (THAAD) and 80 Patriot Advanced Capability–3 (PAC-3) launchers able to intercept short- and medium-range ballistic missiles in their terminal phase. These defenses have been specifically scoped so as not to threaten the strategic nuclear balances with Russia or China.

The DoD Missile Defense Agency (MDA) is the primary research and development sponsor for these systems and works in cooperation with the services. Both the MDA and the services provide funding for intelligence, surveillance, and reconnaissance (ISR) systems; command and

⁴⁰ The White House, 2018, p. 2.

⁴¹ The White House, *Making Our Military Strong Again*, Washington, D.C., January 20, 2017a; quoted in Colin Clark, “Trump WH Makes It Official: Bigger Navy, Air Force, and ‘End’ to Sequestration,” *Breaking Defense*, January 20, 2017.

⁴² U.S. Senate Armed Services Committee, *Secretary of Defense Jim Mattis, Senate Armed Services Committee, Written Statement for the Record, Thursday, April 26, 2018*, Washington, D.C., April 26, 2018, p. 8.

control (C2) systems; and interceptors as part of the United States' ballistic missile defenses. According to the CBO, the MDA portion of the limited ballistic missile defense system alone is currently funded at \$7.9 billion per year, with an emergency FY 2018 supplemental of \$4.7 billion to respond to the rapidly developing North Korean threat.⁴³ The FY 2019 DoD request seeks to increase the base MDA budget to \$9.9 billion.⁴⁴ The services contribute additional funds that support the design, test, acquisition, and operation of missile defense capabilities. However, because these service programs also support operations against aircraft and cruise missile threats, at least some of these costs would be borne even without a ballistic missile defense program.

The United States also makes a significant effort to defend U.S. cyber systems and, as stated in the 2014 QDR, disrupt or deny adversary cyber threats. For example, per an early Trump White House policy statement,

Cyberwarfare is an emerging battlefield, and we must take every measure to safeguard our national security secrets and systems. We will make it a priority to develop defensive and offensive cyber capabilities at our U.S. Cyber Command, and recruit the best and brightest Americans to serve in this crucial area.⁴⁵

However, the Trump administration has yet to direct a wholehearted effort to counter Russian cyberattacks.⁴⁶ If and when countering Russian cyber activities sparks a full-fledged U.S. response, it will presumably require additional human and financial resources. The same may be true for deterring Chinese and other foreign infiltration of vital U.S. computer systems and weapons systems, which have known vulnerabilities.⁴⁷

Prevent Terrorist Attacks

The United States combats terrorism abroad to prevent or preempt attacks against the U.S. homeland and to reduce the ability of VEOs to threaten the United States or its allies and interests in the future. Per the 2015 NMS,

[t]errorism is a tactic VEOs use to advance their interests. The best way to counter VEOs is by way of sustained pressure using local forces augmented by specialized U.S. and coalition military strengths such as ISR, precision strike, training, and logistical support. Counterterrorism operations also involve

⁴³ CBO, *Analysis of the Long-Term Costs of the Administration's Goals for the Military*, Washington, D.C., December 4, 2017c.

⁴⁴ Jen Judson, "MDA \$9.9 Billion Budget Request Geared to Address North Korean Threat," *Defense News*, February 12, 2018.

⁴⁵ The White House, 2017a; quoted in George K. Kostopoulos, *Cyberspace and Cybersecurity*, 2nd edition, Abingdon, UK: Taylor & Francis Group, 2018, pp. 237–238.

⁴⁶ Zachary Cohen, "U.S. Cyber Chief Says Trump Hasn't Told Him to Confront Russian Cyber Threat," CNN, February 27, 2018.

⁴⁷ U.S. Government Accountability Office, *Weapon Systems Cybersecurity: DOD Just Beginning to Grapple with Scale of Vulnerabilities*, Washington, D.C., GAO-19-128, October 2018.

coordinated efforts with other U.S. agencies, working together to interdict and disrupt threats targeting the U.S. homeland.⁴⁸

In 2017, President Trump said,

... today, we deliver a message in one very unified voice: To these forces of death and destruction, America and its allies will defeat you.⁴⁹

U.S. missions in the Middle East and Afghanistan continue to require troops to support moderate governments and maintain pressure on violent extremist groups who seek to attack the United States. The forces deployed to these areas reduce the available capacity for state-centered threats to U.S. security.

Altogether, the United States has 26,000 troops committed to Operation Inherent Resolve in Iraq and Syria, Operation Freedom's Sentinel in Afghanistan, and other anti-ISIS operations in Africa and the Middle East. This includes 8,900 soldiers in Iraq; 1,700 in Syria; and 15,300 in Afghanistan, where the mission has been extended indefinitely.⁵⁰ (Another 14,000 troops are deployed in Kuwait and other Persian Gulf partner states as part of Operation Spartan Shield.)⁵¹ At the time of this writing, President Trump has ordered the U.S. military to quit operations in Syria and to bring home half of the troops in Afghanistan. Operations in Iraq are likely to continue for the foreseeable future and will continue to draw on forces that would be needed for other missions, should they arise. The Trump administration also has stated that it has the legal authority to continue these deployments indefinitely.⁵²

The 2017 NSS commits the United States to combatting the persistent threat of terrorism, which we will discuss further in Chapter 6.

Tier 2 Priorities: Defend U.S. Allies and Interests Against the Most Severe and Urgent Threats

Second to securing the United States and its citizens, the NSS reaffirms an enduring interest in deterring—and, if necessary, defeating—regional aggression in concert with U.S. allies and partners abroad. Collective security and burden-sharing work to deter aggression, preserve international security, and underpin global economic prosperity. In his first NSS, President

⁴⁸ Chairman of the Joint Chiefs of Staff, 2015, p. 11.

⁴⁹ The White House, Office of the Press Secretary, "Remarks by President Trump to Coalition Representatives and Senior U.S. Commanders," MacDill Air Force Base, Tampa, Florida, February 6, 2017b.

⁵⁰ Tara Copp, "26,000 U.S. Troops Total in Iraq, Afghanistan and Syria, DoD Reports," *Military Times*, November 28, 2017.

⁵¹ See Timothy M. Bonds, Michael Johnson, and Paul S. Steinberg, *Limiting Regret: Building the Army We Will Need*, Santa Monica, Calif.: RAND Corporation, RR-1320-RC, 2015. These forces include those assigned to Operation Spartan Shield to counter Iranian coercion in the Persian Gulf; other air and missile defenses protecting U.S. allies and partners in the region; and logistics operations in support of U.S. forces in Syria, Iraq, and Afghanistan.

⁵² Joe Gould, "Trump Administration: Troops Can Stay in Iraq, Syria Indefinitely," *Defense News*, February 23, 2018a.

Trump recommitted the United States to continuing its leading role in maintaining the international order:

The United States must marshal the will and capabilities to compete and prevent unfavorable shifts in the Indo-Pacific, Europe, and the Middle East. Sustaining favorable balances of power will require a strong commitment and close cooperation with allies and partners because allies and partners magnify U.S. power and extend U.S. influence. They share our interests and responsibility for resisting authoritarian trends, contesting radical ideologies, and deterring aggression.⁵³

Similarly, the NDS reaffirms the importance of the international order:

In support of the *National Security Strategy*, the Department of Defense will be prepared to defend the homeland, remain the preeminent military power in the world, ensure the balances of power remain in our favor, and advance an international order that is most conducive to our security and prosperity.⁵⁴

The NDS identifies China and Russia as the focus of U.S. security efforts:

Long-term strategic competitions with China and Russia are the principal priorities for the Department, and require both increased and sustained investment, because of the magnitude of the threats they pose to U.S. security and prosperity today, and the potential for those threats to increase in the future.⁵⁵

NATO

The oldest and most important U.S.-led alliance is NATO, which operates in Europe, Afghanistan, and other areas directly linked to the security of its members. The United States and its European allies established NATO with the express purpose of providing a collective defense of member nations from Soviet aggression.⁵⁶ For nearly 70 years, 13 U.S. Presidential administrations—six Democratic and seven Republican—have committed the United States to this mutual defense treaty.

President Trump's views regarding the U.S. commitment to NATO and our European allies have evolved over time. In his March 21, 2016, comments to the *Washington Post's* editorial board, then-candidate Trump said,

Look, I see NATO as a good thing to have—I look at the Ukraine situation and I say, so Ukraine is a country that affects us far less than it affects other countries in NATO, and yet we are doing all of the lifting, they're not doing anything. And I say, why is it that Germany is not dealing with NATO on Ukraine? Why is it that other countries that are in the vicinity of the Ukraine not dealing with—why are we always the one that's leading, potentially the third world war, okay, with Russia? Why are we always the ones that are doing it? And I think the concept of

⁵³ The White House, 2017c, p. 45.

⁵⁴ DoD, 2018a, p. 4.

⁵⁵ DoD, 2018a, p. 4.

⁵⁶ See NATO, The North Atlantic Treaty, Washington, D.C., April 4, 1949.

NATO is good, but I do think the United States has to have some help. We are not helped. I'll give you a better example than that. I mean, we pay billions—hundreds of billions of dollars to supporting other countries that are in theory wealthier than we are.⁵⁷

He also said,

No, I don't want to pull [the United States] out. NATO was set up at a different time. NATO was set up when we were a richer country . . . NATO is costing us a fortune and yes, we're protecting Europe with NATO but we're spending a lot of money. Number 1, I think the distribution of costs has to be changed. I think NATO as a concept is good, but it is not as good as it was when it first evolved.⁵⁸

In a January 15, 2017, interview with the *Times of London* and Germany's *Bild*, President-elect Trump asserted,

[NATO is] obsolete because it wasn't taking care of terror.⁵⁹

However, in a 2017 speech at U.S. Special Operations command, President Trump reconfirmed the United States' traditional promises to defend its NATO allies:

We will make a historic financial investment in the Armed Forces of the United States and show the entire world that America stands with those who stand in defense of freedom. We have your back every hour, every day, now and always.⁶⁰

In the same speech, President Trump also commented on the fact that many of the United States' NATO partners have not yet met their obligation to increase defense spending to 2 percent of gross domestic product (GDP):

That also means getting our allies to pay their fair share. It's been very unfair to us. We strongly support NATO. We only ask that all of the NATO members make their full and proper financial contributions to the NATO Alliance, which many of them have not been doing. Many of them have not been even close, and they have to do that.⁶¹

In July 2017 comments in Warsaw, Poland, President Trump again reiterated the U.S. commitment to NATO allies:

Today, the West is also confronted by the powers that seek to test our will, undermine our confidence, and challenge our interests. To meet new forms of aggression, including propaganda, financial crimes, and cyberwarfare, we must adapt our alliance to compete effectively in new ways and on all new battlefields . . . Americans know that a strong alliance of free, sovereign and independent nations is the best defense for our freedoms and for our interests.

⁵⁷ Post Opinions Staff, "A Transcript of Donald Trump's Meeting with the *Washington Post* Editorial Board," *Washington Post*, March 21, 2016.

⁵⁸ Post Opinions Staff, 2016.

⁵⁹ Michael Gove and Kai Diekmann, "Full Transcript of Interview with Donald Trump," *The Times* (UK), January 16, 2017.

⁶⁰ The White House, Office of the Press Secretary, 2017b.

⁶¹ The White House, Office of the Press Secretary, 2017b.

That is why my administration has demanded that all members of NATO finally meet their full and fair financial obligation To those who would criticize our tough stance, I would point out that the United States has demonstrated not merely with words but with its actions that we stand firmly behind Article 5, the mutual defense commitment Just as Poland could not be broken, I declare today for the world to hear that the West will never, ever be broken. Our values will prevail. Our people will thrive. And our civilization will triumph.⁶²

As of this writing, the Trump administration has chosen to continue the security guarantees and mutual defense commitments that the United States has traditionally made to its European allies. For example, the 2017 NSS states,

[t]he United States remains firmly committed to our European allies and partners. The NATO alliance of free and sovereign states is one of our great advantages over our competitors, and the United States remains committed to Article V of the Washington Treaty.⁶³

Along with this increasingly favorable view of the value of NATO, President Trump has consistently voiced his concern that U.S. allies do not contribute sufficiently to their collective security. NATO allies have agreed to increase their spending to do so.⁶⁴ Even if they do, however, it will take some time for those increased investments to produce the needed forces in the field. In the meantime, the United States must decide on the degree to which it is willing to bridge this gap with its own forces.

Since 2016, the United States and NATO have improved their force posture in the Baltics to deter potential Russian aggression. Nevertheless, as of this writing, Russia remains capable of causing sudden, catastrophic harm to the Baltic NATO allies.

The United States and its NATO allies also have improved readiness through exercises in the Arctic and in the Black Sea. The 2018 Trident Juncture exercise is an example.⁶⁵ However, Russia poses a less immediate threat of overrunning key population centers in these areas.

Russia also poses myriad threats short of war, ranging from disinformation and cyberattacks to irregular and covert operations. The United States and its allies need to compete on a day-to-day basis if they are to deny Russia any measurable gain from these operations.

This leaves the Trump administration with some hard choices regarding how the United States upholds its commitment to the NATO alliance. The administration could resource the air, sea, and ground forces needed to defend our NATO allies, or it could proceed with less-resolute support for the NATO alliance—i.e., with some equivocation over when, how, and with what share of the required forces the United States would come to the aid of its allies. Finally, the administration could adopt a strategy in the middle: It could commit to defending NATO and

⁶² CNN, “Trump’s Speech in Warsaw (Full Transcript, Video),” July 6, 2017.

⁶³ The White House, 2017c, p. 48.

⁶⁴ NATO, “Wales Summit Declaration: Issued by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Wales,” press release, September 5, 2014.

⁶⁵ James Stavridis, “NATO Is in the Middle of an Expensive and Dangerous Military Exercise. Here’s Why Those War Games Are Worth It,” *Time*, updated October 29, 2018.

increase the U.S. force posture there, while continuing to urge European allies to do more. These choices, and the environment within which they will be made, will be explored further in Chapter 3.

South Korea

The recent warming of relations between North Korea and South Korea and the United States raises hopes of a peaceful resolution to the Korean War and a reduction in military tensions and forces on the peninsula. In the meantime, however, the U.S. military must remain prepared to counter threats to the United States and its interests. North Korean use of nuclear weapons can be deterred by the threat of a massive U.S. nuclear response. In addition, the limited GMD could help defend the United States against the modest numbers of ICBMs that North Korea is likely to build.

South Korea and the United States must be prepared to degrade, delay, or deter military provocations, cyberattacks, and other criminal activity by North Korea or its agents on an ongoing basis. If provocations escalate to missile or artillery attacks, South Korea and the United States must be prepared to engage with the appropriate counterstrategy, including missile defenses, counterbattery fires, and, as a last resort, a combined air and ground campaign to neutralize North Korea's fires complex. In this event, South Korea and the United States will need careful plans to safeguard civilians and evacuate them from areas exposed to catastrophic fires.

In a January 2017 phone call with then-acting South Korean President Hwang Kyo-Ahn, President Trump "reiterated our ironclad commitment to defend the ROK, including through the provision of extended deterrence, using the full range of military capabilities." Further, "The two leaders agreed to take steps to strengthen joint defense capabilities to defend against the North Korean threat."⁶⁶

The 2014 QDR addressed deterring a North Korean attack and countering WMD to some degree. However, the scope and scale of needed capabilities were not fully addressed. As an example, the QDR did not address the possibility of an attack by North Korea's massive artillery forces, although North Korea demonstrated a willingness to strike South Korea with its 2010 attack on Yeonpyeong Island. A provocation cycle could escalate into another attack on South Korea and perhaps even on Seoul itself. Although such an attack seems increasingly unlikely given the warming relations between South and North Korea in 2018, a provocation that escalates could have devastating results. To this point, DoD observed in 2000 that

[w]ithout moving any artillery pieces, the North could sustain up to 500,000 rounds an hour against Combined Forces Command defenses for several hours. The artillery force includes 500 long-range systems deployed over the past

⁶⁶ The White House, Office of the Press Secretary, "1/29/17: Readout of the President's Call with Acting President Hwang Kyo-Ahn of the ROK," Washington, D.C., January 29, 2017a.

decade. The proximity of these long-range systems to the Demilitarized Zone threatens all of Seoul with devastating attacks.⁶⁷

The numbers and ranges of North Korean artillery are reported to have increased since 2000, when this statement was made.⁶⁸ Furthermore, 2017 ballistic missile tests make clear that North Korea has a variety of short- and medium-range missiles that it could employ to attack targets across South Korea and into Japan.

This threat could become worse if North Korea proved able to deliver chemical weapons with its artillery and ballistic missiles. The large arsenal of VX and other chemical agents that North Korea is believed to have might then be employed to disrupt and degrade U.S.-ROK military operations and greatly increase fear among civilians within range.⁶⁹ The amount of destruction that North Korea could cause would increase exponentially if it succeeds in fielding nuclear weapons mated with its ballistic missiles or even its artillery rockets.

As mentioned earlier, North Korean nuclear weapons would continue to pose a problem even if the regime itself were to collapse. The current U.S. force was planned under a strategy that described the problem of “loose nukes” in terms of counterterror and special operations (which would be appropriate for one or a few potential targets), rather than in terms of securing an entire state program from theft and proliferation. The North Korean nuclear program comprises an estimated 200 separate sites, including the Yongbyon Nuclear Scientific Research Center, which by itself covers 16 square kilometers and hosts hundreds of buildings and bunkers.⁷⁰ Although special operations forces would clearly be essential to find, seize, and secure nuclear weapons, such a WMD-elimination (WMD-E) mission would require a force with the size and capabilities that only general-purpose forces can provide.

The Trump administration’s options to address North Korea’s artillery threat to South Korea, as well as its nuclear threat to the world, will be evaluated in Chapter 4.

Taiwan

The United States is not bound by treaty to defend Taiwan, but the 2017 NSS states that the United States is committed to “provide for Taiwan’s legitimate defense needs and deter coercion.”⁷¹ In addition, the 2018 NDS states that

China is leveraging military modernization, influence operations, and predatory economics to coerce neighboring countries to reorder the Indo-Pacific region to

⁶⁷ Office of the Secretary of Defense, *2000 Report to Congress: Military Situation on the Korean Peninsula*, Washington, D.C.: U.S. Department of Defense, September 12, 2000.

⁶⁸ Ministry of National Defense, *2014 Defense White Paper*, Seoul: Republic of Korea, 2014.

⁶⁹ John V. Parachini, “Assessing North Korea’s Chemical and Biological Weapons Capabilities and Prioritizing Countermeasures: Testimony Before the House Foreign Affairs Committee, Subcommittee on Terrorism, Nonproliferation and Trade, and the Subcommittee on Asia and the Pacific,” Santa Monica, Calif.: RAND Corporation, CT-486, January 17, 2018.

⁷⁰ Bonds et al., 2014.

⁷¹ The White House, 2017c, p. 47.

their advantage. As China continues its economic and military ascendance, asserting power through an all-of-nation long-term strategy, it will continue to pursue a military modernization program that seeks Indo-Pacific regional hegemony in the near-term and displacement of the United States to achieve global preeminence in the future.⁷²

Although neither document guarantees that the United States would intervene to defend Taiwan, both indicate a broad U.S. interest in discouraging China from intimidating other neighbors or challenging the military status quo in the Indo-Pacific. We therefore designate deterring Chinese aggression against Taiwan as a Tier 2 priority because the threat to Taiwan ranks as both severe and urgent, and because either a U.S. decision not to defend Taiwan or a U.S. failure to deter or repulse a Chinese invasion would have global geopolitical consequences. Taiwan is discussed in further detail in Chapter 5.

Tier 3 Priorities: Deter Aggression and Defend Broader U.S. Interests

Tier 3 priorities include both routine operations and less urgent priorities. They may be extremely important but are ranked as lower-priority missions for DoD for three reasons. First, the threats they address, although potentially consequential, are less severe or urgent. Second, if the United States fails to accomplish its highest priorities, its tertiary priorities will become different, if not irrelevant. Third, in the case of such highly capable treaty allies and security partners as Japan, DoD can and should play a supporting role.

Tier 3 priorities are deterring Chinese aggression against Japan and the Philippines (although direct aggression seems highly unlikely); working with allies and partners to degrade and defeat VEOs; and deterring Iranian aggression against its neighbors and U.S. friends and allies in the region.

Deter Chinese Aggression

The United States has an ongoing interest in deterring Chinese aggression against Japan and the Philippines. The United States works with its allies and partners on a day-to-day basis to maintain freedom of navigation in international waters and to counter Chinese coercion or aggression in the South China Sea. If deterrence should fail, allies and partners in the region must be ready to counter the Chinese with their own military forces. The United States should be prepared to surge forces to the region to reinforce the defense of our allies. We discuss this topic further in Chapter 5.

Degrade VEOs

VEOs intent on attacking the United States are a continuing threat, and U.S. operations to counter them are a Tier 1 priority. Longer-term operations to degrade or defeat terror groups and deny them sanctuary are likely to continue indefinitely. Neglecting such operations could be

⁷² DoD, 2018a, p. 2.

dangerous to U.S. interests in the long run. The United States will continue operations to counter these threats on a daily basis—including countering Iranian support of terror groups—and will work with allies and friends to do so.

Counter Iranian Bad Behavior

The United States will continue to work with allies and partners in the region to counter Iranian military threats to its neighbors and to international shipping in the Persian Gulf and through the Strait of Hormuz. If Iran were to attack its neighbors (e.g., with ballistic missiles or conventional air, sea, or land forces), then the United States should be prepared to reinforce the defenses mounted by allies and partners in the region. We discuss this topic further in Chapter 6.

Conduct Other Deployed Operations

The United States has an interest in deterring aggression against friendly nations with whom it may have defense cooperation agreements and a broad interest in deterring all interstate aggression as a condition of global stability, although it usually chooses to pursue this interest by means short of armed conflict. To this end, the United States regularly deploys air, naval, and ground forces around the world in presence or stability operations. The 2018 NDS refers to “[s]ustaining Joint Force military advantages, both globally and in key regions;” “[m]aintaining favorable regional balances of power;” and “[e]nsuring common domains remain open and free” among its key objectives.⁷³ These operations have several aims: First, they help underpin regional partnerships and position forces to be able to quickly respond to crises. Second, forces deployed abroad also conduct training engagements with U.S. allies and can help to develop partner capabilities. Finally, such interactions help to maintain the capability to conduct stability and counterinsurgency operations where and as needed.

Sometimes, U.S. forces deployed abroad are conducting a show of force or flexible deterrent operation to signal U.S. commitment to deter aggression against its allies and partners. One example would be air, naval, and ground forces operating in the Western Pacific to conduct freedom of navigation missions or to deter China from seizing islands from U.S. allies and denying them access to maritime areas. The Trump administration’s 2017 NSS states,

China’s infrastructure investments and trade strategies reinforce its geopolitical aspirations. Its efforts to build and militarize outposts in the South China Sea endanger the free flow of trade, threaten the sovereignty of other nations, and undermine regional stability. China has mounted a rapid military modernization campaign designed to limit U.S. access to the region and provide China a freer hand there. China presents its ambitions as mutually beneficial, but Chinese dominance risks diminishing the sovereignty of many states in the Indo-Pacific.⁷⁴

Other deployed forces also may support missions to defend the U.S. homeland from overseas operating locations. Anti-submarine forces, air and missile defenses, and ballistic missile

⁷³ DoD, 2018a, p. 4.

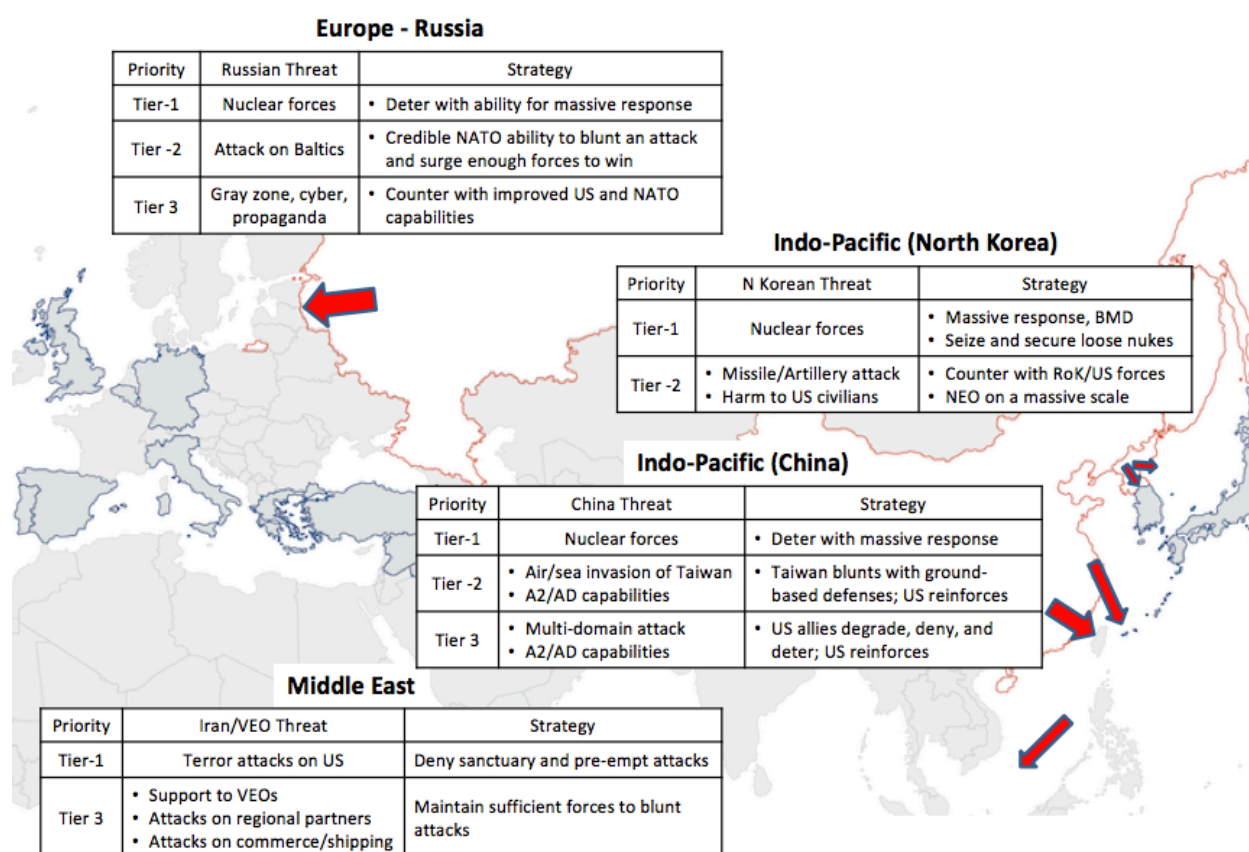
⁷⁴ The White House, 2017c, p. 46.

submarines are some examples. These missions presumably would continue even if other operations in support of alliances did not, although other nations might be less willing to host these forces if they are deployed only for U.S. security.

Finally, the United States regularly conducts humanitarian relief operations to aid nations and people suffering the effects of disasters. These operations support a U.S. objective of being a humane and reliable partner in times of great need. We consider such operations insofar as they require additional resources or place additional demands on the capabilities of the United States and its allies.

Figure 2.1 presents Tier 1, 2, and 3 priorities in their regional contexts.

Figure 2.1. U.S. Defense Priorities and Suggested Strategies in Key Regions



3. Deterring Russian Aggression in the Baltics

As discussed earlier, Russia is one of the two long-term strategic competitors named in the NDS as a focus of U.S. security and defense strategy. For the foreseeable future, an overt Russian attack against any NATO nation appears unlikely. An attack on the Baltics would trigger some form of NATO response under Article 5 of the NATO Treaty, with the potential for escalation and catastrophic losses were the conflict to spiral out of control. Russia would not enter such a conflict with the United States and its European allies lightly or without full consideration of the risks incurred against potential benefits to be gained.

Ultimately, however, it is impossible to predict Russia's intentions with certainty, and those intentions may change precipitously and without warning. Instead, defense planning should be based on a careful examination of Russia's military strategy, behavior, posture, and the consequences of a war with a well-armed nuclear power.

Russia's national security strategy identifies the expansion of the NATO alliance to its borders as *the* principal external threat and its security objectives include removing NATO forces and infrastructure from its borders.⁷⁵ Russia's observed behavior—first in Georgia, then in Crimea and eastern Ukraine—indicates its willingness to violate internationally recognized borders, allegedly to protect ethnic Russian populations, even at the cost of economic sanctions. In eastern Ukraine, Russia has demonstrated a sophisticated, multi-faceted strategy of using irregular forces backed by its regular army.

Then-Defense Secretary Mattis described the potential threat of Russian aggression in these terms:

Since Yalta, we have a long list of times we've tried to engage positively with Russia. We have a relatively short list of successes in that regard.

I think right now the most important thing is that we recognize the reality of what we deal with [in] Putin and we recognize that he is trying to break NATO and that we take the steps—integrated steps, diplomatic, economic, military—and working with our allies to defend ourselves where we must

I would consider the [principal] threat (to America) to start with Russia. And it would certainly include any nations that are looking to intimidate nations around the periphery, regional nations nearby them, whether it be with weapons of mass destruction or unusual, unorthodox means of intimidating them.⁷⁶

⁷⁵ President of Russia, *Military Doctrine of the Russian Federation*, Moscow, December 25, 2014; Nataliya Gubernatorova, "New Military Doctrine Identified Threats to the Russian Federation: NATO, Territorial Claims, Destabilization in the Regions," *MKRU*, December 26, 2014; Reuters, "Russia's New Military Doctrine Names NATO as Key Risk," December 26, 2014.

⁷⁶ Leo Shane, "In His Own Words: Mattis on the Challenges Facing the Military," *Military Times*, January 15, 2017.

The 2017 NSS also states that Russia poses a growing threat to Europe and the United States:

Although the menace of Soviet communism is gone, new threats test our will. Russia is using subversive measures to weaken the credibility of America's commitment to Europe, undermine transatlantic unity, and weaken European institutions and governments. With its invasions of Georgia and Ukraine, Russia demonstrated its willingness to violate the sovereignty of states in the region. Russia continues to intimidate its neighbors with threatening behavior, such as nuclear posturing and the forward deployment of offensive capabilities.⁷⁷

Finally, the consequences of a war between modern air and ground forces in Europe would be devastating in terms of lives lost and damage to civilian infrastructure. As a nuclear power with more than 7,000 weapons, Russia also has the ability to escalate a conflict. At some particularly vulnerable point in the future, Russian President Vladimir Putin could believe that he sees a narrow window of opportunity to influence conditions along his borders through some coercive or aggressive action.⁷⁸ Once begun, the ensuing crisis could escalate to conflict either deliberately or accidentally. To address the risks of miscalculation, escalation, and war with Russia, prudence demands that the United States and its allies ensure that no Russian leader sees an opportunity to successfully commit aggression against NATO states.

In this chapter, we assess alternative strategies to deter a Russian attack in the Baltics, potential outcomes of armed combat with Russia should U.S. deterrence fail, and the implications of those strategies for needed U.S. force posture and operational plans (OPLANs) to reinforce NATO. Although other regions and countries—such as Ukraine—are arguably more important to Russia, NATO is in a singularly weak position to defend the Baltics, as we will describe. Therefore, although a direct Russian attack on the Baltics is unlikely, the effects would be catastrophic for those nations and disastrous for the NATO alliance. We include a brief overview of U.S.-Russia relations in the appendix to this report.

Russian Strategy Choices

If Russia chose to pursue a more coercive policy, it might employ several different strategies. Perhaps most likely would be a strategy to coerce its neighbors, including NATO nations. For example, it could encourage separatists or other proxies to punish neighbors that exercise with

⁷⁷ The White House, 2017c, p. 47.

⁷⁸ For example, former Swedish Prime Minister Carl Bildt made the following observation:

I fail to see any immediate risk of Russia taking aggressive action against any of these countries. They are stable democracies and solid members of both the [European Union] and NATO. But we have a duty to look ahead a few years. The future is increasingly uncertain, and we may well be headed toward a period of maximum danger in our relations with Russia. In five to ten years, the Putin regime will face its unavoidable end, and will be considering its legacy. The country's economic and social crisis will no doubt have deepened and its perception of its military might continue to soar. If Russia sees Europe fracturing, and the West waning, temptation to act will be high. It is important that we build up a solid defense today as a deterrent against these adventurist tendencies down the line (Carl Bildt, "3 Ways to Stop 'Revisionist, Militaristic' Russia," *Politico*, updated February 16, 2016).

NATO forces or allow NATO military infrastructure in their nations. Russia has effectively employed “separatist” forces in South Ossetia and Abkhazia to pressure Tbilisi and in Donetsk and Luhansk to pressure Kyiv. The effect is intended to punish these nations for moving toward the West and reduce NATO’s willingness to accept them as members.

Such actions also could derive from a narrative in Russia’s foreign policy that identifies “protecting the rights of compatriots abroad” as a principle it will uphold.⁷⁹ This could constitute a possible precedent and pretext for future Russian action in the Baltics. Ethnic Russians are a minority in the Baltic states but represent sizable proportions of the total population in some enclaves. Moreover, there are frequent claims that ethnic Russians in the Baltics (e.g., in Latvia) face discrimination.

Another scenario might be for Russia to use its air, sea, and space forces to harass the operations of other nations in land or maritime areas important to Russia. Russian fighters have flown close to U.S. warships in the Baltic Sea on several occasions, and Russia has been accused of jamming the Global Positioning System (GPS) signals used by allied forces during exercises.⁸⁰ In 2018, Russia captured Ukrainian naval vessels operating in the Sea of Azov.⁸¹ Some portion of Russia’s annexation of Crimea could have been motivated by fears of losing access to Sevastopol or having NATO gain some access to it.

A more provocative move would be a Russian action in Lithuania with the pretext of protecting access to Kaliningrad. A small strip of land, sometimes referred to as the “Suwalki Gap,” separates the Kaliningrad enclave from Belarus and has been mentioned by U.S. commanders as a place that Russia might act in order to secure continued access to that enclave.⁸² Russia has been expanding its military capabilities in Kaliningrad, and its forces have been conducting no-notice “snap exercises,” which improve their ability to act quickly and with little notice.⁸³

Alternatively, Russia could continue or expand its military operations in the Middle East or Ukraine. Its operations in Syria have bolstered Russia’s status as a global military power; supported the Assad regime and increased pressure on Assad opponents, causing them to flee and increasing refugee pressure on Europe; and provided arguments for Europe to prioritize military operations against violent extremist groups. However, Russia’s Syria operations and its campaign of armed aggression in Ukraine both tend to tie down significant Russian ground, air, and sea forces. So long as these operations continue, it seems unlikely that Russia will have

⁷⁹ See Robert Coalson and Nail Khisamiev, “Europe’s Tatars Resist Being Represented by Moscow Proxy Group,” Radio Free Europe, April 22, 2016.

⁸⁰ Alexander Smith, “Russian Flyby of USS *Donald Cook* in Baltic Sea Alarms Experts,” NBC News, April 14, 2016; BBC News, “Russia Suspected of Jamming GPS Signal in Finland,” November 12, 2018a.

⁸¹ BBC News, “Tension Escalates After Russia Seizes Ukraine Naval Ships,” November 26, 2018b.

⁸² See U.S. Department of Defense, “Department of Defense Press Briefing by General Hodges on Operation Atlantic Resolve in the Pentagon Briefing Room,” transcript, December 9, 2015c.

⁸³ Jim Maceda, “Why the Suwalki Gap Keeps Top U.S. General Up at Night,” NBC News, November 26, 2015.

sufficient forces for a campaign against any NATO nation. (Conversely, if Russia does wrap up these operations, it could be a signpost that it is rebuilding strength for other missions.)

If Russia were to use force against NATO, it may choose to do so in a piecemeal fashion. In a piecemeal campaign, Russia might prefer such deniable means as irregular warfare tactics and other measures short of war in ethnic Russian areas (e.g., Narva). Russian goals might include increasing leverage over its neighbors, weakening the resolve of the United States and its allies, and sowing uncertainty and dissension within NATO about the applicability of Article 5 guarantees and what sort of response might be warranted. The campaign could parallel that in Ukraine, with ethnic Russian insurgents operating to undermine Baltic authorities with support as needed from Russian volunteers. Russian special operators could provide heavy infantry weapons and recruit, train, advise, and assist local irregular units.

However, it could be much more difficult in the Baltics for the Russian Army to provide covert support to irregular “little green men.” Estonia and the other Baltic states might use their militaries to resist such irregulars, thereby forcing regular Russian Army forces to overtly support their surrogates in order for them to succeed.⁸⁴ Here, the advantage of belonging to an alliance should prove helpful to the Baltic states. Overt Russian military actions would increase the risks of strengthening NATO’s resolve and drawing reinforcements from the United States and other NATO allies. If Russian Army support to irregular operations caused the United States and other NATO allies to move additional heavy forces into the Baltics, the result might put Russia in a less favorable position.

Finally, Russia could choose to mount an offensive operation into some or all of the Baltic states. A Russian invasion could begin with a limited incursion into ethnic Russian areas, such as Narva, perhaps under the guise of protecting civilians from alleged mistreatment by Estonian and Latvian “gangs,” or perhaps by the Baltic governments themselves. Such a move could be designed to avoid engaging U.S. forces directly and would be calculated to end in forcing a negotiated settlement rather than escalating into a broader war. Russian aims might be to demilitarize the Baltic states, seek additional freedoms and rights for Russian nationals, or even redraw boundaries. The risk that Russia might start such a conflict increases to the extent that Russia believes its pretext for intervention is strong, its capture of territory would be quick, and that the determination of the United States and NATO to resist is weak.

Alternatively, Russia could seek to open a “Suwalki Corridor,” perhaps claiming it as necessary to prevent Kaliningrad from being cut off from the rest of Russia, a claim that would be more plausible if NATO threatens to cut air, land, or sea lines of communications prior to a conflict. By sending forces into Lithuania from Belarus and Kaliningrad, Russia would cut ground lines of communication between Poland and the Baltic states, thereby severing the one land link between the Baltics and the rest of NATO. It might be possible to begin such an operation under the pretext of rotating forces out of Kaliningrad. Russian leaders might believe

⁸⁴ Sam Jones, “Estonia Ready to Deal with Russia’s ‘Little Green Men,’” *Financial Times*, May 13, 2015. In the article, GEN Riho Terras, Estonian Chief of Defence, is quoted as saying that “If somebody without any military insignia commits terrorist attacks in your country you should shoot him . . . you should not allow them to enter.”

that they could secure a land line of communication without much violence, so long as the operation is executed swiftly and is completed before Lithuania or NATO could forcefully intervene.⁸⁵ Then, Russia could either seek a negotiated settlement that would allow some greater Russian presence in—and control over—this corridor or move in an even more aggressive direction.

Finally, Russia could mount a general invasion of the Baltics with the goal of seizing control of Tallinn, Riga, and perhaps Vilnius before the United States and NATO could mount an effective defense. To reduce the indications and warning of an imminent attack, Russian forces might first stage a large “snap exercise” close to their intended invasion routes. Russian ground and air units would then take advantage of their positions in the field to move quickly into the Baltic nations. If it did choose to attack NATO allies, Russia might be most likely to seek gains from a short, sharp campaign rather than risk a prolonged campaign that would expose any systemic weaknesses in personnel, material, or sustainment capabilities. Given the aggregate military and economic strengths of NATO, Russia could be at a severe disadvantage if the campaign were to last for months or years.

European Operational Situation

The combined ground and air forces of those NATO nations most likely to deploy forces to defend the Baltics dwarf those of Russia, as shown in Table 3.1. The selected NATO forces are those of the United States, Canada, France, Germany, Poland, the United Kingdom, and Estonia, Latvia, and Lithuania. These nations have committed forces to the Baltic states and are perhaps most likely to provide reinforcements in this region. Although other NATO nations, such as Spain and Italy, also have committed small units to the Baltics, they and Turkey might be more focused on the Mediterranean region if Russia increases its activities there.

⁸⁵ See Todd South, “If Russia Started World War III, Here’s How It Would Go Down,” *Military Times*, September 13, 2017.

Table 3.1. Comparison of Russian Air and Ground Forces with Those of Selected NATO Nations

	Russia	Selected NATO	Russia:NATO Force Ratio	Russia - Western MD
Total Ground Troops	500K	1023K	0.5:1	185K
Armored Bde/Reg	23	31	0.7:1	18
Inf Bde/Reg	40	56	0.7:1	11
Tanks	2700	4600	0.6:1	757
Artillery	2645	2571	1:1	997
Attack Helicopters	348	901	0.4:1	115
Fighters	974	4200	0.2:1	321

SOURCE: Data are from Chapters 3 and 4 of International Institute for Strategic Studies (IISS), *The Military Balance*, Vol. 117, No. 1, 2017.

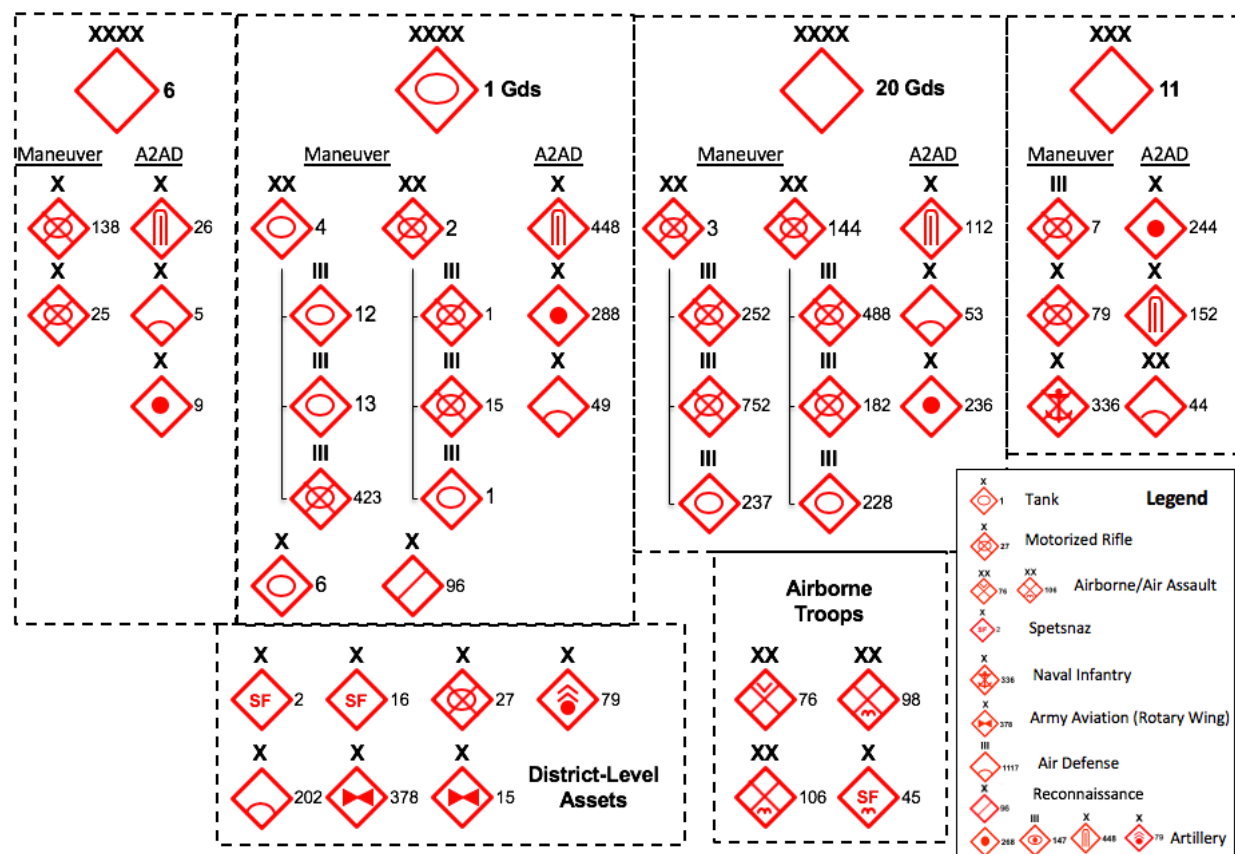
NOTES: MD = Military District. Bde/Reg = brigade/regiment. Inf = infantry.

This aggregate comparison suggests that Russia would be at a disadvantage in a lengthy war against NATO and might favor a campaign in which it can quickly achieve its operational and strategic goals before NATO and the United States can effectively react. The Baltics might be one such place.

As shown in the last column of Table 3.1, the RAND team estimates that the Russian Western Military District could have 185,000 ground troops made available to it (including general-purpose, airborne, special forces, naval infantry, and supporting artillery and logistics units) with 757 tanks, nearly 1,000 artillery pieces and 115 attack helicopters supported by more than 300 fighters and possibly by Russia's complement of 139 long-range bombers.⁸⁶ As shown in Figure 3.1, Russia is organizing the ground forces under the 6th, 1st Guards Tank, and 20th Guards Armies, as well as around the 11th Corps, which is headquartered in Kaliningrad.

⁸⁶ Scott Boston, Michael Johnson, Nathan Beauchamp-Mustafaga, and Yvonne K. Crane, *Assessing the Conventional Force Imbalance In Europe: Implications For Countering Russian Local Superiority*, Santa Monica, Calif.: RAND Corporation, RR-2402, 2018.

Figure 3.1. Russian Western Military District Organization, 2017



SOURCE: Data are from Chapter 5 of IISS, 2017, p. 218; and Boston et al., 2018.

NOTE: The dotted lines have been added to distinguish which units we assess to be assigned to each of the Army and Corps commands. Gds = Guards.

At the tactical echelons, RAND researchers estimate that subordinate units will include a tank division, three airborne/airmobile divisions, three mechanized divisions and additional independent brigades (including headquarters, A2/AD forces, and selected maneuver units that are still forming).⁸⁷ The overall force structure will presumably grow as the new divisions and brigades complete training and are deployed in the field. Additional units could be added with some movement of forces from other military districts.

Against these forces, the current NATO posture in the Baltics is at a severe disadvantage, as shown in Table 3.2. Together, Estonia, Latvia, and Lithuania currently can muster the equivalent of four U.S.-style infantry brigades supported by some older towed artillery pieces. They have no tanks (except a few obsolete systems for training), very few modern infantry fighting vehicles, and no fighter aircraft. Their capabilities are strengthened by three multinational battlegroups: one led by the United Kingdom, one by Canada, and a third by Germany. We estimate that these

⁸⁷ Boston et al., 2018.

battlegroups together bring approximately 3,700 troops, 42 tanks, and 6 self-propelled artillery pieces.⁸⁸

Altogether, the current Baltics posture, including national forces and the three NATO battlegroups, is made up of approximately 17,000 regular troops (not counting reserves or militia). These forces would be at an 11-to-1 disadvantage in troops, an 18-to-1 disadvantage in tanks, and a 15-to-1 disadvantage in artillery.

Table 3.2. Potential Russian Posture Against NATO Forces in the Baltics

	Russia - Western MD	Current Baltics with NATO BGs	Russia:NATO Force Ratio	VHRJTF, GRF and U.S. Forces in Europe	Baltics with VHRJTF and U.S. Forces	Russia:NATO Force Ratio
Total Ground Troops	185K	17K	11:1	26K	43K	4.3:1
Armored Bde/Reg	18	.5	36:1	1.3	1.8	10:1
Infantry Bde	11	4	3:1	4	8	1.4:1
Tanks	757	42	18:1	116	158	4.8:1
Artillery	997	68	15:1	90	158	6.3:1
Attack Helicopters	115	0	-	48	48	2.4:1
Fighters	321	0	-	144	144	2.2:1

SOURCE: Data are from IISS, 2017.

NOTES: MD = Military District. Bde/Reg = brigade/regiment. BGs = battlegroups. VHRJTF = Very High Readiness Joint Task Force. GRF = Global Response Force. The ratios in column 3 are the result of dividing the number in column 1 by the number in column 2. Ratios in column 6 are numbers in column 1 divided by those in column 5.

With 7–10 days of warning, the United States could deploy the 173rd Airborne Brigade from Italy; the 2nd Stryker Cavalry Regiment from Germany; and the Global Response Force, made up of a brigade from the 82nd Airborne Division. The United States also has a rotational armored brigade combat team (ABCT) based in western Poland as part of Operation Atlantic Resolve. This armored brigade is a very capable formation, but on any given day its constituent companies and battalions may be spread across several nations conducting training exercises with U.S. allies and partners. If we assume that it can concentrate its forces into the Baltics with 7–10 days of warning, it would add 4,600 troops, 87 tanks, and 18 self-propelled artillery pieces to the Baltic forces. The aviation brigade assigned with that ABCT would add 48 attack helicopters. In

⁸⁸ NATO, “NATO’s Enhanced Forward Presence,” factsheet, Brussels, Belgium: Media Operations Centre, August 2018.

addition, a battalion of the 278th ABCT is leading a U.S. battlegroup in Poland.⁸⁹ Sending that unit to the Baltics would add another 1,000 troops and 29 tanks. NATO's Very High Readiness Joint Task Force (VHRJTF) could add 5,000 troops and additional artillery if it can deploy in time.⁹⁰ Finally, we assume that the six U.S. Air Force (USAF) fighter squadrons stationed in Europe could support these ground forces as well.

These forces would add considerably to the current forces in the Baltics. Unfortunately, as shown in the far-right column of Table 3.2, these forces would still be decisively outnumbered by the Russian forces available in the Western Military District. Based on a series of wargames and analyses, RAND researchers estimate that, against NATO forces now in the Baltics or able to arrive within 7–10 days, the Russian Army could reach Tallinn and Riga in between 36 and 60 hours.⁹¹ Defending NATO forces that are outgunned, outmanned, and outranged by heavier Russian forces would need to retreat into the capitals in order to survive.

Doctrinally, a force should be at least one-third the size of an attacking force to ensure a successful defense, assuming that the attacker's and defender's quality of troops, morale, and equipment are roughly equal. As shown in Table 3.2, counting the forces that could plausibly arrive on short warning, NATO would have especially high deficits in tanks and artillery compared with Russian forces in the region. Currently, the NATO ground component does not have a tactical corps or full division headquarters to provide C2 for conducting integrated fire and maneuver operations with joint U.S. and allied forces. (Several NATO multinational headquarters do exist, but they do not operate the "U.S.-only" warfighting systems riding on the Secret Internet Protocol Router Network [SIPRNet]; consequently, they cannot perform the role of U.S. warfighting headquarters.)

NATO's fighter aircraft could be reinforced to make up for some of the disparity in armor and artillery, but only after they succeed in breaking through the formidable Russian air defenses. We estimate that Russia would commit one-third of its total fighter force (321 fighters or 11.5 squadron equivalents) and some portion of its 139 bombers to support an invasion of the Baltics. (This represents roughly twice as many fighters than are normally deployed in the Russian Baltic fleet and 6th Air Force combined.) Once in combat, NATO fighters must suppress the ground-based air defenses in Kaliningrad and those advancing with Russian ground forces to a point at which NATO's 4th-generation fighters can operate with acceptable risk.

This will be a challenge. The Russians have a formidable air defense force operating in the Western Military District, as shown in Table 3.3.⁹² In addition to the short-range air defenses that are organic to their maneuver brigades, Russia has four independent air defense brigades operating with their ground forces, three surface-to-air missile (SAM) regiments operating with

⁸⁹ Jake Lowary, "1,000 from Tennessee National Guard to Deploy to Poland in 2018," *Tennessean*, November 9, 2017.

⁹⁰ NATO, Allied Joint Force Command Brunssum, "NATO Response Force (NRF) Fact Sheet," webpage, undated.

⁹¹ David A. Shlapak and Michael W. Johnson, *Reinforcing Deterrence on NATO's Eastern Flank: Wargaming the Defense of the Baltics*, Santa Monica, Calif.: RAND Corporation, RR-1253-A, 2016.

⁹² Boston et al., 2018.

their naval forces (including those in Kaliningrad), and seven more SAM regiments operating with the 6th Air Force and Air Defense Army. In total, these formations operate a dense, multilayered integrated air defense comprising 272 long-range S-300 and S-400 firing units, which are protected by 73 medium-range units, such as the SA-11 and SA-15, and 288 short-range units, such as the Pantsir and the SA-22. These Russian forces should be expected to use advanced tactics to frustrate attempts to target them and to minimize their vulnerability to anti-radiation missiles.

The best aircraft to attack the Russian air defenses would be NATO's 5th-generation aircraft, such as the B-2, the F-22, and the F-35. The United States has 20 B-2s, 179 F-22s, and 175 F-35s. NATO allies have begun taking delivery of the F-35s with nine in their inventory for a combined NATO total of 184 aircraft. Although none of the U.S. 5th-generation aircraft are currently stationed in Europe, they would presumably be among the first to be deployed in the warning time before a war.

Table 3.3. Russian Western Military District Integrated Air Defenses Versus Total NATO 5th-Generation Aircraft

Russia Western MD Integrated Air Defenses	NATO 5 th Generation Aircraft
Long Range: 272 Medium Range: 73 Short Range: 288	B2: 20 F22: 179 F35: 184

SOURCE: Data are from IISS, 2017.

NOTE: MD = Military District.

As a historical example, in Operation Desert Storm (ODS), USAF planners estimated that it would take coalition air forces two weeks to gain air supremacy over Iraq.⁹³ In the event, it took much less time than that, but the ODS coalition fighter and attack force numbered more than 1,800 aircraft compared with the initial NATO force of 144 fighters we have estimated in Table 3.2. Furthermore, Iraq possessed 65 SA2/3/6 launchers compared with Russia's 272 vastly more capable S-300/400 launchers and the 350 advanced short- and medium-range systems protecting them. We estimate that it would take at least two weeks, and likely longer, to destroy enough of the Russian air defenses to allow 4th-generation aircraft to attack invading Russian ground forces.

The best weapons available today for suppression of enemy air defenses (an operation better known by its acronym, SEAD) are the high-speed anti-radiation missile (HARM) munitions

⁹³ See James Winnefeld, Preston Niblack, and Dana J. Johnson, *A League of Airmen: U.S. Air Power in the Gulf War*, Santa Monica, Calif.: RAND Corporation, MR-343-AF, 1994.

employed by aircraft and the Army tactical missile system (ATACMS) employed by ground forces. Unfortunately, the HARM has a range of about 100 km, forcing the launching aircraft to operate within the kinematic range envelope of Russian defenses. This would be a very dangerous operation for 4th-generation non-low-observable aircraft, although stealthy 5th-generation aircraft might be able to employ the HARM with acceptable risk.

Accelerating this campaign would either require more 5th-generation aircraft than planned or the use of artillery systems to bear a greater portion of the burden. The ATACMS missile would also be a good option to strike at air defense radars if one or more rocket artillery brigades were deployed.

This creates an additional problem for NATO's ground forces, which have traditionally enjoyed the freedom to operate without the threat of attack from the air. U.S. ground forces have dramatically reduced their organic air defenses, making them vulnerable to these attacks. As long as the Russian integrated air defenses remain intact, Russian fixed- and rotary-wing aircraft can attack NATO ground forces with much less risk from defending NATO fighter aircraft.

Geographical Considerations

To make a NATO defense of the Baltics a bit more challenging, some unique problems stem from the Baltic states' geography. Estonia, Latvia, and Lithuania share a total border of approximately 1,000 km with Russia, Belarus, and the Russian enclave of Kaliningrad, as shown in Figure 3.2. This is similar to the former West German 1,100-km border with East Germany and Czechoslovakia.

However, while the Soviets during the Cold War would have had to penetrate 400 km of heavily defended terrain from Fulda to Luxembourg to cut West Germany in half, it is only 220 km across lightly defended terrain from the Russian city of Pskov to the Latvian capital and port city of Riga. Similarly, Russian forces based in the Kaliningrad enclave need only take a 70-km-wide strip of Lithuania to close the Suwalki Gap, which connects Lithuania to Poland via land routes. It would likely be infeasible to defend the Baltics if the Russians captured Tallinn and Riga and closed all land, sea, and air routes to the Baltics with their forces in Kaliningrad.

Figure 3.2. Borders Between Russia, Belarus, and the Baltic NATO Nations

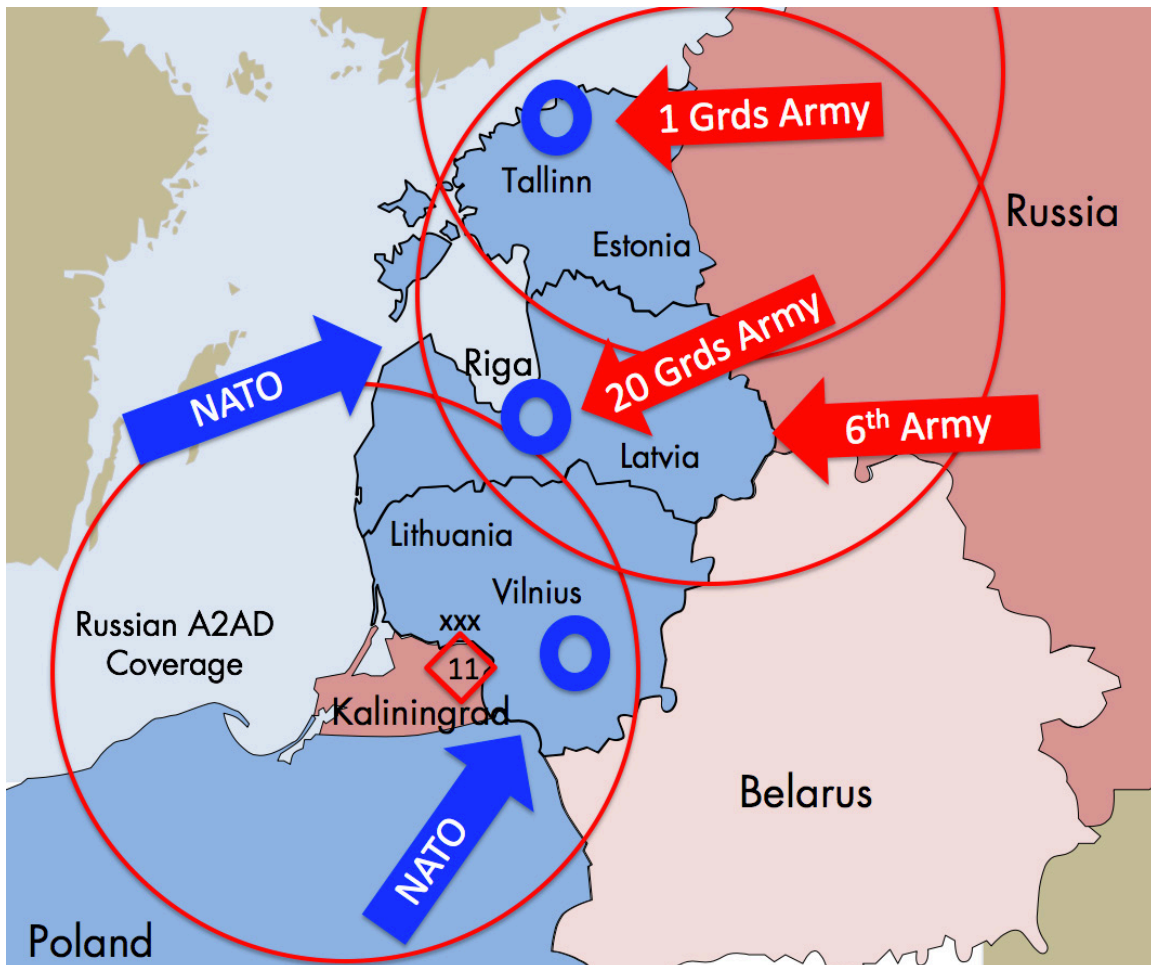


This geography also provides an opportunity for the Russians to employ an A2/AD strategy to contest operations in the air, sea, and space domains, as depicted in Figure 3.3. Advanced Russian SAMs, such as the S-400, can hit targets at ranges of 250 km or more, thereby allowing Russia to deny the airspace over Kaliningrad and most of the Baltic states. Non-stealthy NATO aircraft operating within the range of these systems would suffer severe losses. In addition to its integrated air defenses, Russia has capable anti-ship and surface-to-surface missiles (employed as A2/AD forces) to oppose U.S. entry into theater and attack its forces in rear areas. Long-range Russian anti-ship missiles operating out of Kaliningrad can threaten NATO vessels attempting to reinforce or resupply forces defending the Baltic states.

Russian A2/AD forces also can limit where U.S. air and sea forces may be safely based. In past conflicts, U.S. air and sea forces were based close to their operating areas. Long-range Russian rocket artillery and missiles, however, have the ability to strike these bases—and can push U.S. bases hundreds of kilometers away—reducing the effectiveness of its air forces.

In addition, Russia could use its Iskander or ground-attack cruise missiles to attack the ports, road, rail, and other infrastructure supporting allied military operations and the U.S. and allied reinforcements using them to get to the Baltics. Depending on how broadly Russia might define that infrastructure, civilian targets could be at risk. Russia also has submarines to attack ships coming from the United States.

Figure 3.3. Current Russian A2/AD Coverage over the Baltic States



Given these disparities, the current NATO force posture in the Baltics is insufficient to defeat a Russian invasion or to prevent invading forces from reaching and isolating the key port cities of Tallinn and Riga. The combination of Russian advantages and the small number of U.S. and NATO forces currently postured in the Baltics requires a careful consideration of the strategies that the United States and its NATO allies might employ. We will assess two main strategies with some variations: (1) deter by threat of punishment and (2) deter by denying Russian objectives.

U.S.-NATO Strategy Alternatives

Deter by Threat of Punishment

Because the currently deployed U.S. and NATO forces could not stop a determined Russian invasion, NATO's current strategy is to deter by threatening to inflict enough military, economic, and diplomatic punishment so that the consequences of a war with NATO would far outweigh any potential gains. In theory, these threats could include sanctions and other diplomatic and

economic measures to coerce Russia to leave the Baltics; threatening a large conventional military counteroffensive campaign to defeat Russian forces and compel their withdrawal from NATO territory; and threatening various forms of escalation up to nuclear attack if Russian forces did not cease offensive operations and return to the status quo ante.

Sanctions

Imposing sanctions and other economic and diplomatic measures would avoid the immediate costs and risks of war with Russia. Unfortunately, even when they cause pain, sanctions can take time to work. Although sanctions imposed after the invasion of Ukraine arguably have damaged Russia's economy, they have not yet forced Russia to stop its support of Ukrainian separatists, much less to withdraw from Crimea.⁹⁴

Perhaps worse, sanctions and other diplomatic measures—if utilized as the primary response to a Russian invasion or conquest of the Baltics—would effectively cede at least temporary control of these nations to an aggressor. If that time extended to months or years of negotiations, this response would appear to renege on the commitment to collective defense from the point of view of the Baltic states. Such a policy might be seen as particularly feckless if it was employed after a Russian attack, particularly if NATO and U.S. military personnel were killed. At the least it would damage the credibility of U.S. and European commitments and might imperil the legitimacy of NATO itself.

Trip-Wire Forces Activating a Counteroffensive Campaign

The forces that the United States and its NATO allies have deployed to the Baltics could serve as a “tripwire” that triggers some sort of NATO response if attacked. One response could be a counteroffensive by NATO forces.

Conducting a deliberate counteroffensive to defeat the Russian Army and retake the Baltics by force would take months to prepare. Ground forces would have to deploy from the United States, France, Germany, the United Kingdom, and other NATO allies and travel by road and rail for hundreds of kilometers to assembly areas in Poland. Air forces would have to be deployed to bases in Poland, Germany, and other NATO nations.

In the meantime, the attacking Russian units will have had several months to prepare their fighting positions. As NATO forces begin to arrive, Russia could bombard their assembly areas and the rail and road infrastructure over which they would travel. Furthermore, leaders in the United States have expressed worries that the Russians might threaten first use of nuclear weapons if its conventional forces face an imminent defeat or Russian territory is directly threatened.⁹⁵ Even if Russia does not resort to the use of nuclear (or chemical) weapons, a conventional fight in the Baltics is sure to be costly in terms of lives lost and damage done to the

⁹⁴ See Keith Crane, Shanthi Nataraj, Patrick B. Johnston, and Gursel Rafig oglu Aliyev, *Russia's Medium-Term Economic Prospects*, Santa Monica, Calif.: RAND Corporation, RR-1468-RC, 2016.

⁹⁵ DoD, *Nuclear Posture Review*, Washington, D.C., February 2018b.

Baltics, other NATO nations serving as bases for the campaign, Russia, and perhaps selected targets in the United States.

For these reasons, a tripwire that is thousands of miles long and takes several months to result in a response is problematic. If the United States and its NATO allies are unwilling to put more than a tripwire force into the Baltic region before an attack, it might weaken the credibility of NATO's commitment to a massive counteroffensive to beat back a Russian attack. That is, the Russians may be skeptical that an alliance unwilling to commit enough forces in peacetime to "blunt" a hypothetical offensive would then commit vastly more forces to reverse a successful invasion.

Horizontal or Vertical Escalation

Finally, the United States could threaten some form of escalation if Russia refuses to leave the Baltics after beginning an attack. Effective escalation requires identifying a compelling punishment or a Russian asset to hold at risk. As some examples of horizontal escalation, the United States could choose to attack Russian military forces elsewhere in the world, such as the Northern, Baltic, Black Sea, or Pacific fleets; block commercial shipping from serving Russian ports; or provide direct military support to Ukraine.

Of course, each of these actions involves substantial risks and raises practical problems of its own. Attacking Russian military forces might require U.S. attacks against ports, airbases, and other military facilities in the Russian homeland, unless those forces choose to deploy. Russia could respond in kind to some degree with attacks against similar facilities in the U.S. homeland and selected attacks against U.S. forces deployed worldwide. Differences in Russian air and sea force capabilities would probably make their attacks less effective, but they could still exact some military or political toll if targets were selected when particularly good opportunities arose.

Blockading commercial shipping also might become problematic: Would the United States be willing to sink third-party merchant ships bound to or from Russian ports if they refused to honor a blockade? What if they were Chinese ships or from another neutral nation?

Committing sea, air, and ground forces to fight in Ukraine also has been raised. However, it seems unlikely that the United States would sustain a military campaign in Ukraine for an extended period of time or deploy enough forces to make a decisive difference. If the United States were committed enough for such a campaign, then it would more likely choose to deploy forces in the Baltics to defend its treaty allies.

The most important question is whether any of these efforts would actually compel Russia to leave the Baltics. The Russians might be able to weather such punishments until they completed their conquest of the Baltics. By that time, the United States might tire of continuing a series of conflicts around the periphery of Russia, especially if such conflicts showed no signs of causing the Russians to quit their Baltics campaign.

Finally, the United States could threaten *vertical escalation*; that is, to greatly increase the damage inflicted on Russian forces in the Baltics. Vertical escalation threats must be assessed against their potential advantages and risks. In theory, the United States could reintroduce the

threat of employing battlefield nuclear weapons if faced with the imminent defeat of its conventional forces, much in the same way that Russia has. During the Cold War, the United States threatened to employ tactical nuclear weapons if Warsaw Pact forces were about to overrun NATO conventional forces. However, the Russian invasion force might not present an attractive target if it dispersed in conquered Baltic cities or was well dug-in and dispersed in the field. Attacking Russian forces on their bases might be an even worse option, as it is likely to draw a proportionate nuclear strike against U.S. and NATO forces and bases. Worst of all, such a strategy opens the possibility of an escalation to strategic nuclear warfare. In all, a U.S. threat to escalate to the use of nuclear weapons is unlikely to be credible.

With these questions immediately apparent to both sides, the great weakness of a deter-by-threat strategy is the risk that Russia would not believe the threat to be credible. If Russia were to call NATO's bluff, then the United States and its allies face the choice of folding—i.e., admitting that they do not intend to make good on their threat—or committing themselves to a risky series of escalating military measures that would be costly in terms of lives lost and damage sustained but that do not directly interfere with a Russian offensive in the Baltics.⁹⁶

Deter by Denial

An alternative to deterring by threat is to deter by denying Russia any potential gains from aggression. This would require that the United States and our NATO allies deploy sufficient forces in the Baltic region to stop Russian forces short of their objectives and hold them for long enough to allow reinforcements to deploy to theater. Here, we will use some of the language of the NDS, where “contact” forces “compete more effectively below the level of armed conflict;” “blunt” forces “delay, degrade, or deny adversary aggression;” and “surge” forces are “war-winning.”⁹⁷

To implement this policy, the United States and its NATO allies must determine: (1) the size and capabilities needed in the “blunt” force to deny a quick Russian win; (2) how long the blunt force can reasonably hold out until reinforcements can arrive; (3) how large and capable the “surge” force needs to be to reinforce the blunt force and expel Russian forces; and (4) the combinations of U.S. and NATO forward-deployed forces, pre-positioned equipment, and fast air- and sealift capable of providing the needed blunt and surge forces in time.

NATO's ability to rapidly reinforce its members if they are attacked and Russia's recognition of NATO's determination and ability to do so in a timely manner are both crucial to deterrence. The NATO defense ministers have agreed with a U.S. proposal to provide 30 mechanized battalions, 30 fighter squadrons, and 30 ships within 30 days of a deployment notice to reinforce

⁹⁶ To sum up this strategy, each of these options begins by deterring with an explicit threat. If Russia attacks anyway, thereby calling our bluff, the United States will resort to sanctions (arguably reneging on our commitment to defend by force of arms), mount a counteroffensive, or threaten escalation. The first course of action might be called “Bluff. Lose. Leave angry,” the second might be called “Bluff. Lose. Demand a rematch,” and the third “Bluff. Lose. Double Down (or Bluff bigger).”

⁹⁷ DoD, 2018a, p. 7.

the NATO units constituting the initial deterrent.⁹⁸ As Alexander Vershbow, formerly the NATO Deputy Secretary-General, explained, the initial deterrent force would trigger the deployment of these reinforcements rather than be expected to conduct prolonged combat operations. He said, “Reinforcements are still the indispensable element. And it is clear that NATO’s capacity to reinforce is still far less than is required.”⁹⁹ NATO Secretary General Jens Stoltenberg expects NATO to implement this Readiness Initiative by 2020.¹⁰⁰

The NATO Four 30s forces are shown in the right-hand column of Table 3.4, and the Russian Western Military District forces they must be ready to defeat are shown in the left-hand column. In between are the NATO forces in the Baltics now and those able to deploy there rapidly.

Table 3.4. Required NATO Surge Forces

	Russia - Western MD	Current Baltics with NATO BGs	VHRJTF, GRF and U.S. Forces in Europe	NATO “Four 30s” Surge Reinforcements
Total Ground Troops	185K	17K	26K	118K
Armored Bde/Reg	18	.5	1.3	30 Bns (10 Bdes)
Infantry Bde	11	4	4	-
Tanks	757	42	116	870
Artillery	997	68	90	-
Attack Helicopters	115	0	48	-
Fighters	321	0	144	30 Sqds (720 a/c)

SOURCE: Data are from IISS, 2017.

NOTES: MD = Military District. BG = battlegroup. Bde/Reg = brigade/regiment. Bns = battalions. Sqds = squadrons.

RAND researchers have estimated that the 30 NATO mechanized battalions should be equivalent to ten U.S. Army ABCTs in terms of size and fighting capabilities, and the 30 fighter

⁹⁸ This proposal is referred to as the “Four 30s” Plan. See Julian E. Barnes, “NATO Fears Its Forces Not Ready to Confront Russian Threat,” *Wall Street Journal*, March 28, 2018; Radio Free Europe and Radio Liberty, “NATO Agrees to ‘Four 30s’ Plan to Counter Russia,” June 7, 2018.

⁹⁹ Quoted in Radio Free Europe and Radio Liberty, 2018.

¹⁰⁰ Martin Banks, “NATO Members ‘Have Turned a Corner’ in Defense Spending, Stoltenberg Says,” *Defense News*, June 7, 2018.

squadrons should be equivalent to 30 U.S. Air Force 24-aircraft squadrons.¹⁰¹ These forces must be able to begin deploying to Poland and the Baltics immediately after a Russian attack for the last of these force elements to close in theater on day 30.

The problem is that the forces currently in the Baltics, or those able to arrive quickly (shown in the middle two columns of Table 3.4) are not capable of holding for 30 days against the Russian forces available in the Western Military District. (See column 2, “Current Baltics with NATO BGs.”) Even if they are reinforced by the NATO VHRJTF, the U.S.-based GRF, and the U.S. brigades already in Europe, NATO forces would still be decisively outnumbered by Russian forces (see column 3 of Table 3.4, “VHRJTF, GRF and U.S. Forces in Europe”). Our best estimate, based on quantitative analyses and wargames, is that these NATO forces would be hard-pressed to hold the Russian Army out of Riga for more than 60 hours.¹⁰² If the NATO defense in the Baltics cannot hold out for long enough to receive reinforcements, then its credibility in deterring a Russian attack would be seriously weakened.

In order to degrade, delay, or deny (or to “blunt,” as the NDS terms it) a Russian invasion for long enough for reinforcements to arrive, the NATO forces in the Baltics must be strengthened significantly, as shown in Table 3.5. Prior RAND wargames and analyses have concluded that NATO would need to deploy three armored brigades; four infantry or Stryker brigades; and supporting artillery, helicopter, and fighter forces to stop a Russian advance for 28 days. (See the middle column of Table 3.5, “Needed Blunt Force.”)¹⁰³ Adding two fires brigades would reduce Russia’s artillery advantage and, more importantly, would provide long-range rockets to fire against Russian air defense systems. Employing six squadrons of fighters, or 144 aircraft—especially if they featured 5th-generation fighters with air-launched SEAD weapons—would add crucial capabilities to the NATO force.

As mentioned earlier, we assume that the 30 mechanized battalions in the surge force would be the equivalent of ten U.S. armored brigades (shown in the far-right column of Table 3.5, under the heading “NATO ‘Four 30s’ Surge Reinforcements”).¹⁰⁴ Such a force would include supporting combat units; three fires brigades and three combat aviation brigades would be

¹⁰¹ RAND researchers have estimated that three ABCTs and four Stryker or infantry brigade combat teams (IBCTs) would be required to stop a Russian attack short of Riga and Tallinn, and reinforcements of another 9–14 brigade combat teams (BCTs) comprising a mix of armor, infantry, and Stryker units would be needed to expel the invading forces along with supporting fires, aviation, and logistics units. The NATO Four 30s reinforcements, if organized as ten U.S.-sized armored brigades, would be roughly equivalent to the 9–14 BCTs of reinforcements that RAND researchers estimated. See David A. Shlapak, “Deterring Russian Aggression in the Baltic States: What It Takes to Win: Testimony Before the House Armed Services Committee, Subcommittee on Tactical Air and Land Forces,” Santa Monica, Calif.: RAND Corporation, CT-467, March 1, 2017.

¹⁰² Shlapak, 2017.

¹⁰³ Shlapak, 2017.

¹⁰⁴ The NATO Readiness Initiative includes 30 squadrons of fighter aircraft to be ready within 30 days to reinforce NATO’s defense of the Baltics. Because aircraft can deploy to a theater relatively rapidly, we include a portion of these 30 squadrons of fighters in each of the “contact,” “blunt,” and “surge” forces to account for the increase in their numbers over time. For related work, please see David Ochmanek, Peter A. Wilson, Brenna Allen, John Speed Meyers, and Carter C. Price, *U.S. Military Capabilities and Forces for a Dangerous World: Rethinking the U.S. Approach to Force Planning*, Santa Monica, Calif.: RAND Corporation, RR-1782-1-RC, 2017.

consistent with similarly sized U.S. formations. We assume that 30 fighter squadrons would each comprise 24 aircraft to be similar to USAF formations. Altogether, we estimate that this Four 30s force would provide NATO with 870 additional tanks, 276 artillery pieces, 144 attack helicopters, and 720 fighter aircraft.

Table 3.5. Required NATO and U.S. Blunt Forces

	Russia- Western MD	NATO Forces in Baltics Now	Needed Blunt Force	NATO “Four 30s” Surge Requirements
Total Ground Troops	185K	17K	78K	118K
Armored Bde/Reg	18	.5	9 Bns (3 Bdes)	30 Bns (10 Bdes)
Inf Bde/Reg	11	4	4 S/IBCT	-
Tanks	757	42	261	870
Artillery	997	68	190	276
Attack Helicopters	115	0	96	144
Fighters	321	0	6 Sqds (144 a/c)	30 Sqds (720 a/c)

SOURCE: Data are from IISS, 2017.

NOTES: Bde/Reg = brigade/regiment. Inf = infantry. Bns = battalions. S/IBCT = Stryker/infantry brigade combat team. Sqds = squadrons.

Based on a series of wargames and analyses, RAND researchers estimate that the blunt force shown in the middle column of Table 3.5 could hold out for up to 28 days before it must be reinforced (roughly equivalent to the 30 days in which NATO plans for reinforcements to arrive). The needed blunt force would still be outnumbered by 2.4 to 1 in ground troops, 3 to 1 in tanks, 5 to 1 in artillery, and more than 2 to 1 in fighter aircraft, as shown in Table 3.6.

Once the Four 30s surge reinforcements arrive, force ratios would swing in NATO’s favor. Total blunt plus surge troops would be a bit better than parity, with NATO achieving a 1.5-to-1 advantage in tanks, 2-to-1 advantage in attack helicopters, and a 2.7-to-1 advantage in fighter aircraft. (The Russians would continue to have a more than 2-to-1 advantage in artillery.) These forces would need to be “prepared to counterattack to restore lines of communication from

Poland towards Riga, reinforce defense, and eventually conduct a counteroffensive to drive the Russians back behind their prewar borders.”¹⁰⁵

Table 3.6. Required NATO Blunt and Surge Forces

	Russia Western MD	Needed NATO Blunt Force	Russia:NATO Force Ratio	NATO Blunt + Four 30s Surge Reinforcements	Russia:NATO Force Ratio
Total Ground Troops	185K	78K	2.4:1	196K	~1:1
Armored Bde/Reg	18	3 ABCT	6:1	13 ABCT	1.4:1
Inf Bde/Reg	11	4 S/IBCT	~3:1	4 S/IBCT	~3:1
Tanks	757	261	~3:1	1131	1:1.5
Artillery	997	190	~5:1	466	2.1:1
Attack Helicopters	115	96	1.2:1	240	1:2
Fighters	321	144	2.2:1	864	1:2.7

SOURCE: Data are from IISS, 2017.

NOTE: We are using a U.S. ABCT as a standard measure here because the armored units of other NATO nations vary considerably in their equipment and organization.

RAND researchers’ analyses suggest that this somewhat-better-than-parity NATO force could win if the following conditions are met:

- The NATO blunt force succeeds in stopping invading Russian forces outside of Riga and Tallinn and the chosen defensive positions in Lithuania.¹⁰⁶
- Once the Russian offensive has been stopped, NATO defenders are able to maintain their defense until the full NATO surge force arrives.
- NATO air and artillery forces are able to significantly reduce the Russian air defenses, allowing NATO air forces to attack Russian ground forces.
- NATO air and ground forces are then able to limit the ability of Russian ground forces to fire, maneuver, or be reinforced by other military districts, allowing NATO to achieve local superiority at critical times and places on the battlefield.

¹⁰⁵ Shlapak, 2017.

¹⁰⁶ Vilnius would be the most politically desirable stopping point in Lithuania, but its position close to the border of Kaliningrad and Belarus could expose it to quick overrun depending on the chosen direction of an attack and whether Belorussia chooses to join. Kaunas or the port city of Klaipeda might be necessary alternatives.

France, Germany, and the United Kingdom eventually should be able to put one armored brigade each into the field, but previous analyses estimate that it would take several months for them to make the troops and equipment ready for combat.¹⁰⁷ Therefore, at present, the United States would need to provide the three armored brigades for the blunt force while our NATO allies continue to provide the battalion task forces operating in each of the Baltic states. We assume that the United States also would commit the 2nd Stryker Cavalry Regiment, the 173rd Airborne Brigade, and an additional Army infantry brigade, as well as two rocket artillery fires brigades and two combat aviation brigades. The USAF would contribute the six fighter squadrons already postured in Europe. The initial contributions of the NATO allies would be the VHRJTF, which includes an additional infantry brigade with artillery, as well as the battalion-sized battlegroups and the Estonian, Latvian, and Lithuanian forces in the Baltics now.

For the surge force, the RAND team estimates that Canada, France, Germany, the United Kingdom, and Poland should together be able to commit the equivalent of five armored brigades, with perhaps some help from the other NATO members or by bringing the Baltics battlegroups up to the size of a U.S. Army ABCT equivalent. Canada, France, Germany, and the United Kingdom have a combined total of 11 armored brigades and more than 800 tanks.¹⁰⁸ At present, sustaining five armored brigades forward (roughly 40 percent of their total combined force) will be a stretch for our allies because of the extraordinarily deep cuts they made after the Cold War. Given the large and capable armored forces our allies fielded during the Cold War, it is clear that Britain, France, and Germany should be able to increase their capabilities, but this will take some time.¹⁰⁹

The NATO allies also should be able to provide one-third of the combined artillery and attack helicopters and 12 squadrons of fighter aircraft. The United States would then need to provide a total of eight armored brigades and three infantry brigades (including armor, Stryker, and airborne units already in Europe). In addition, we estimate that the United States would need to contribute four fires brigades, four attack aviation brigades, and 24 fighter squadrons. Depending on the Russian land threat in the Arctic, the United States also might need to deploy a Marine Expeditionary Brigade to Norway.

Furthermore, the NATO force will require echelon-above-brigade field headquarters able to command and control NATO air and ground forces engaged in combined-arms fires and

¹⁰⁷ See Michael Shurkin, *Setting Priorities in the Age of Austerity: British, French, and German Experiences*, Santa Monica, Calif.: RAND Corporation, RR-222-A, 2013.

¹⁰⁸ We chose these nations because of the leading role they play in the multinational battalion task forces in the Baltics and the contributions made in past allied operations. See IISS, 2017.

¹⁰⁹ We should note that we are not including Polish armored brigades in our estimates of the forces needed to either blunt or defeat a Russian invasion for three reasons. First, Poland shares a long border with Kaliningrad and Belarus, which must be defended against potential maneuver threats to NATO's rear areas. Second, Poland is essential to NATO's strategic depth in any war with Russia, and NATO will rely on the Polish Army to secure the vital air- and seaports, supply routes, and logistics nodes in these areas. Finally, to rely overmuch on the Polish Army could leave Poland in the position of facing the Russian Army more or less on its own on the ground at some points along its border, with much of the rest of NATO operating at a comfortable distance. The danger and difficulty of facing the Russian Army must be shared among NATO allies.

maneuver. It is likely that the United States will need to provide at least one corps and several division headquarters, with perhaps additional headquarters coming from the United Kingdom, France, or Germany.

It is important to note that the Trump administration has made it clear that it expects its NATO allies to increase their military contributions. Therefore, the current disparity in force contributions will not be acceptable to the United States indefinitely. Over the next several years, the NATO allies should make a sustained investment in the forces and equipment needed to grow their contributions. A reasonable goal might first be 40 percent of the needed blunt and surge armored forces (i.e., five armored brigades in addition to the three NATO battlegroups in the Baltics), then a 50-50 share (i.e., six armored brigades plus the battlegroups), and, ultimately, the majority of the force. The amount of time allowed for this load rebalancing should be part of the negotiation, although the United States should expect a minimum of five years for its allies to reach parity and perhaps as many as ten years to exceed the U.S. contribution. In the meantime, the United States would have to provide most of the needed ABCTs if the defense of the Baltics is to be ensured.

With a bit of time, it also should be possible to increase the contribution of NATO air forces. Most NATO nations have maintained modern air forces that should be able to provide effective support to combined operations. The United Kingdom, France, Germany, and Canada alone have maintained a combined force of nearly 800 land-based fighter aircraft. (It is interesting to note that these nations have kept nearly as many fighters as tanks, despite the much greater unit cost of aircraft over tanks.) Using a 50-percent readiness rate would yield 396 aircraft, or 17 24-aircraft squadron equivalents. Better still, these nations tend to equip their air forces with higher-end aircraft, including the introduction of 5th-generation F-35s. Contributing 50 percent of their forces to the Baltics would still leave them with 396 aircraft at home—as well as the air forces of Denmark, Belgium, Italy, and the Netherlands—to patrol NATO’s airspace and serve as replacements or reinforcements.

For several reasons the total blunt plus surge forces proposed in our analysis would be a bit higher than the surge force agreed upon by the NATO defense ministers in July 2018. First, other RAND analyses describe the “notable” improvements that Russia has made in its force structure, especially in its armored forces.¹¹⁰ These improvements include the three field armies (the 6th, 1st Guards, and 20th Guards) and the 11th Corps recently organized within or deployed to Russia’s Western Military District, as shown earlier in Figure 3.1. These formations include an existing armored division and three airmobile divisions, as well as three newly formed mechanized infantry divisions and several independent brigades. All of the Russian maneuver brigades, including its airmobile units, provide tanks and armored transport for its infantry. Perhaps more significantly, these field armies feature a great deal more tube and rocket artillery than do NATO’s forces.

¹¹⁰ Boston et al., 2018.

Second, by the time reinforcements arrive, the initial forces defending the Baltics might have suffered significant attrition. Their tanks and other heavy equipment are likely to be reduced by the effects of combat and the wear and tear of high operations tempo and sporadic maintenance support. If it takes more than 30 days for the NATO surge reinforcements to arrive, then the initial defenders might not be able to participate in counterattack operations, leaving that task entirely to the relief force.

Finally, Russia also may be able to significantly reinforce its initial invasion force. RAND researchers have estimated that Russia could deploy additional forces from its 60 maneuver brigades to reinforce operations in the Baltics, particularly if it suspends operations in Ukraine.¹¹¹ In theory, the United States and NATO allies could send additional reinforcements if needed. In practice, though, at current levels of readiness, the NATO allies will be hard-pressed to maintain six maneuver brigades (five armored and one infantry) in combat against a major power. The United States, as we will discuss in Chapter 7, would have a hard time providing more than eight armored brigades for NATO unless it reduces other deployment demands on U.S. armored forces around the world.

Additional Campaign Considerations

Russian Naval Threats

The main Russian naval threats are shown in Table 3.7. We compare them with the naval and air forces of the United States and the naval and air forces of selected northern-tier and Mediterranean NATO nations.¹¹² NATO must maintain sea lines from the United Kingdom and the United States to continental Europe against attack by Russian submarines and must trail Russian ballistic missile submarines in case the war escalates to the nuclear threshold. One carrier strike group (CSG), along with long-range anti-submarine warfare (ASW) patrols based in Greenland, Iceland, and the United Kingdom, should be able to close the Greenland-Iceland-UK (GIUK) gaps. If Russian submarines succeed in breaching these defenses and reaching the open Atlantic, then a second CSG would be needed to hunt these submarines and provide escorts, if and as needed, for supplies and reinforcements arriving from the United States by sea. An additional CSG or long-range patrol aircraft operating out of Japan may be required to check the Russian Pacific fleet and trail its submarines. (This CSG will be considered in Chapter 7 as part of the Indo-Pacific capabilities needed.)

Swedish naval and air forces, especially if aided by NATO, should be able to defend against Russian amphibious operations against Gotland and other Swedish territories. NATO naval and

¹¹¹ Boston et al., 2018.

¹¹² See IISS, *The Military Balance*, Vol. 118, No. 1, 2018. We include the naval and air forces of Belgium, Denmark, Germany, the Netherlands, Norway, Poland, and the United Kingdom in the “North” category. For the purposes of this comparison, we include the naval and air forces of France and Italy in the Mediterranean Sea. Other NATO signatory nations, including Turkey, Greece, and Spain, also may contribute crucial capabilities to operations in the Mediterranean.

air forces should be able to contain Russian naval activities to the Baltic. Acquisition of land-based anti-ship missile systems by NATO partners (such as Poland, Norway, Denmark, and Germany) could help check those Russian naval activities shielded by anti-air missile systems.

Table 3.7. United States and NATO versus Russian Air and Sea Forces

	NATO				Russia				
	US	North	South	Sweden	Total	Northern	Baltic	Black	Pacific
Fighters	3284	848	498	97	974	79	163	279	246
Land-based ASW	122	32	18		44	21			23
Fixed-wing Carriers	11	0	3		1	1			
Helicopter Carrier	9	1	3						
Surface Combatants	103	76	40	9	32	11	8	6	7
SSN/SS	54	32	13	5	49	25	2	4	18
SSBN	14	4	4		13	8			5

SOURCE: Data are from IISS, 2018.

NOTE: SSN/SS = nuclear-powered attack submarine/submarine. SSBN = ballistic missile submarine.

The Russian Black Sea fleet can be prevented from entering the Mediterranean Sea so long as Turkey denies passage through the Bosphorus and Dardanelles. If elements of the Black Sea fleet do enter the Mediterranean—for example, before hostilities begin—they would be vulnerable to attacks by NATO sea and air forces. The naval and air forces of France and Italy by themselves should be sufficient to neutralize Russian Black Sea fleet vessels operating in the Mediterranean Sea. Forces from Spain, Greece, and Turkey also may contribute to NATO control of this area.

U.S. and NATO Reinforcements

As discussed earlier, timely reinforcements will be crucial to the success of NATO in denying Russia a successful invasion. NATO ground forces deployed to the Baltics must hold out for long enough for NATO air and sea forces to break through Russian A2/AD forces based in Kaliningrad or to stop advancing Russian ground forces. They must be able to continue fighting for long enough to be relieved by NATO air and ground reinforcements.

The NATO agreement to have reinforcements available to surge to the Baltics within 30 days of a deployment order should be feasible for forces already present in Europe. For example, the 3rd BCT of the 4th Infantry Division successfully moved from the port of Bremerhaven to its assembly area in Zagan, Poland, in 14 days.¹¹³ It should be noted, however, that this move was uncontested by air and missile strikes against important ports and rail lines. It may be possible

¹¹³ Sydney J. Freedberg, Jr., “Army Soldiers Slash Time to Move from Port to Front: Deterring Russia,” *Breaking Defense*, March 17, 2017.

for German, French, and British armored units to move from their respective nations by rail and road to the Baltic region in roughly the same amount of time, so long as they can withstand Russian kinetic, cyber, and information attacks and are given a high priority for logistics and the necessary diplomatic clearance processes. Under similar assumptions, NATO fighter squadron reinforcements should be able to stage to forward airbases within the prescribed 30-day timeline.

Forces deploying by ship from the United States and Canada, however, will require much more time to arrive in the Baltic region. As a historical comparison, the United States was able to deploy 450 fighter aircraft and the 82nd Airborne Division by day 33 of Operation Desert Shield (see Table 3.8).

Table 3.8. U.S. Deployment Time for Operations Desert Shield and Vigilant Warrior

C-day	C+3	C+6	C+20	C+33	C+40	C+49	C+61	C+68	C+88
Desert Shield									
XVIII ABC start	1 st ship arrives POE	1 st ship departs POE	1 st ship arrives POD	82 nd ABD closed		24 th ID closed	101 st ABD closed	3 ACR closed	1 st CAV closed
9 th AF start		~100 aircraft	~250 aircraft	~450 aircraft					
USMC start					4 th MEB Arrives				
2 CVBG in theater			3 CVBG in theater						
Vigilant Warrior									
24ID start	Brigade ready to fight								

SOURCES: Richard M. Swain, *"Lucky War": Third Army in Desert Storm*, Fort Leavenworth, Kansas: U.S. Army Command and General Staff College Press, 1997; Winnefeld, Niblack, and Johnson, 1994; W. Eric Herr, *Operation Vigilant Warrior: Conventional Deterrence Theory, Doctrine, and Practice*, thesis, Maxwell Air Force Base, Ala.: School of Advanced Airpower Studies, Air University, June 1996; William J. Perry, *Annual Report to the President and the Congress*, Washington, D.C.: U.S. Department of Defense, February 1995, p. 280; and Bradley Graham, "Rapid Deployment Plans in the Crucible," *Washington Post*, October 11, 1994.

NOTES: ABC = Airborne Corps. POE = port of embarkation. POD = port of debarkation. ABD = Airborne Division. ID = Infantry Division. ACR = armored cavalry regiment. CAV = cavalry division. AF = U.S. Air Force. USMC = U.S. Marine Corps. MEB = marine expeditionary brigade. CVBG = carrier battle group. 24ID = 24th Infantry Division.

A marine expeditionary brigade (MEB) arrived on day 40, and the 24th Infantry Division (comprising 3 ABCTs, a fires brigade, an aviation brigade, and supporting forces) arrived by day 49.¹¹⁴ Two more divisions and an armored cavalry regiment arrived by day 88. It would likely take a similar amount of time for U.S. forces to deploy by sea to a European contingency, absent any significant Russian interference, such as cyberattacks, submarine attacks against ships in transit, or air and missile attacks against European ports of debarkation.

It may be possible to shorten the deployment time for U.S. forces by placing additional equipment sets and supplies for the surge force in theater. This has the advantage of greatly reducing the amount of material that must be shipped by sea on warning while unit personnel can then be shipped by air. The United States already has one such armored brigade equipment set in the Netherlands to augment the rotational armored brigade.¹¹⁵ This concept was demonstrated in Operation Vigilant Warrior, when the United States was able to deploy personnel from the 24th Infantry Division to pre-positioned equipment in Kuwait and have the division ready to fight within 72 hours of the deployment order.¹¹⁶ It is important, of course, that the pre-positioned equipment be placed in a secure area that could not be quickly overrun in a short-notice attack, sabotaged by special operations forces, or destroyed by artillery. Western Poland or eastern Germany may be suitable locations.¹¹⁷

European Infrastructure Considerations

The success of any defensive strategy also depends on a highly developed system of bases and transportation infrastructure within Germany, Poland, and the Baltic states to deliver combat forces and sustain combat operations. It is vital for NATO to assess the logistics infrastructure that it will need and begin planning for it now. First, NATO needs approved OPLANs that identify operational logistics and posture requirements. Important to these OPLANs will be the air- and seaports; rail- and roadways; and facilities able to move an enormous quantity of troops, equipment, and supplies to the battle areas.

Germany, Poland, and—perhaps to a lesser extent—other European nations would need to serve as the staging bases for any counterattack. Their sea- and airports would be filled with reinforcements arriving from the United Kingdom, Canada, the United States, and other overseas allies. Their rail- and roadways would be needed to transport troops and supplies from continental European allies, and their territory would become extended bases for the air and ground forces marshaled to launch the counteroffensive to retake lost NATO territories.

¹¹⁴ Swain, 1997, p. 24.

¹¹⁵ “U.S. Army Opens Storage Depot for 1,600 Tanks in Limburg,” *DutchNews*, December 15, 2016.

¹¹⁶ See Herr, 1996; Perry, 1995, p. 280; and Graham, 1994.

¹¹⁷ The United States currently has one armored brigade equipment set pre-positioned at sites split between Germany and the Netherlands. See Jacob McDonald, “Prepositioned Equipment Site Officially Opens in Netherlands,” U.S. Army, webpage, December 16, 2016.

Poland and Germany's strategic location would, in turn, expose them to the worst of Russian preemptive attacks. Ports and airfields would be subjected to missile and air attacks to destroy or delay incoming units and equipment. Railyards and marshaling areas would be targeted, and bivouac areas and material stockpiles would be placed at great risk. To make a counteroffensive possible, Poland, Germany, and other NATO nations would have to harden their infrastructure to survive a series of attacks. The United States and our NATO allies also should be prepared to invest in an integrated long-range theater air and missile defense system.

For each of the strategies described, NATO will need to make difficult decisions regarding when and how heavily to attack Russian air defenses, anti-ship missile defenses, long-range rocket artillery, logistics, and second-echelon forces in Russia and the Kaliningrad enclave (and Belarus, if it were to allow the use of its territory for Russian operations). Any such attacks carry risks of Russia escalating the war. However, these Russian units will inflict significant casualties among NATO forces: Failing to attack them may undermine the viability of NATO's defense.

Perhaps more difficult will be deciding whether and how to attack Russian dual-use tactical forces (i.e., forces able to employ both conventional and nuclear weapons). Such forces embody one possible Russian escalation option and their presence keeps this option close at hand. Such systems as the Iskander surface-to-surface ballistic missile could be targeted by NATO forces, much as the Russians are expected to target dual-use U.S., British, and French fighters and bombers. (Those same NATO aircraft comprise NATO's principal tactical nuclear deterrent now that U.S. Army artillery forces are no longer equipped with nuclear shells.)

An even more significant risk would be attacking with ground forces through Kaliningrad. It may prove both unnecessary and unwise to take this step, but the NATO command must at some point consider the circumstances under which it might feel compelled to hold Russian forces in the region at some risk if it were to counterattack Russian forces occupying NATO member territories.

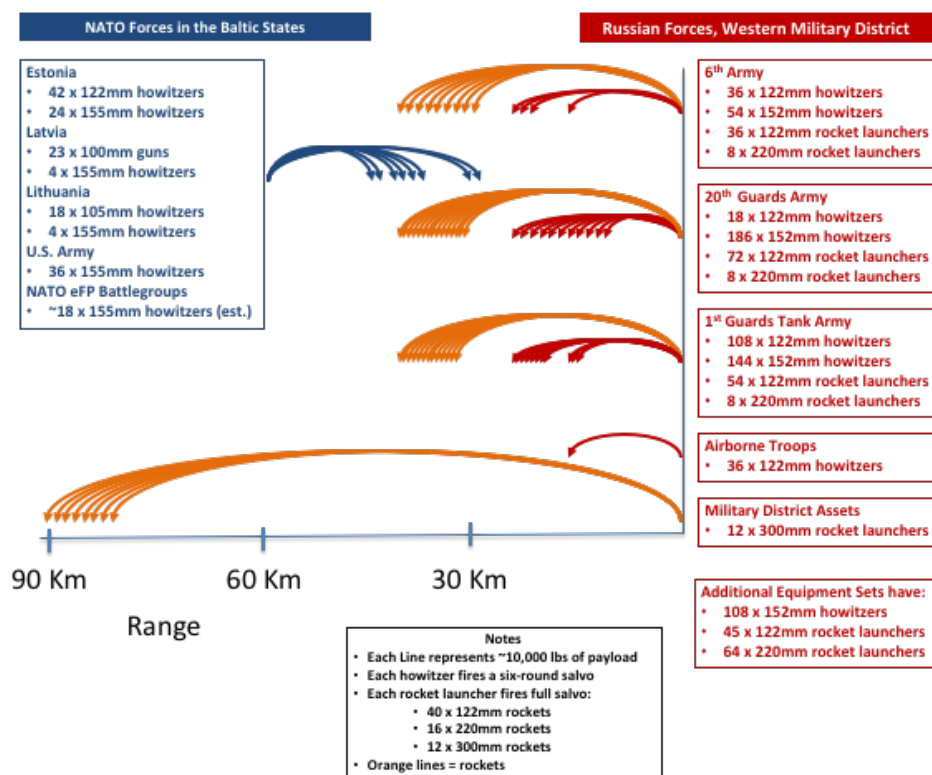
Finally, perhaps the most grave and serious decision that the United States and our NATO allies must consider is whether to posture tactical nuclear-capable air and sea forces in the theater. Presumably, these systems would deter Russia from striking NATO nations and military forces with nuclear weapons. However, it may be less convincing to threaten a nuclear response to Russian use of chemical weapons because Russia presumably would respond with a nuclear strike of its own. Russian possession of chemical weapons, then, may present the United States and its NATO allies with an unconventional threat that will be difficult to counter except through the use of massive conventional attacks.

Investments in Near-Term Capabilities, Development of Breakthrough Technologies, and Geopolitical and Conceptual Innovation

U.S. forces will need some near-term improvements. U.S. and NATO forces are currently outranged and outgunned by Russian artillery, as shown in Figure 3.4. Adding fires brigades with rocket artillery to the NATO force would help, but the numbers of self-propelled artillery

pieces in these units and the NATO maneuver brigades must be increased to make them a match for Russian artillery forces.

Figure 3.4. The United States and NATO Are Outgunned by Russian Artillery in the Baltics



SOURCE: Data are from IISS, 2018, and RAND analysis.

NOTE: eFP = enhanced forward presence.

In addition, it is important to invest in sufficient munitions to enable these units to sustain fires over the course of a campaign. For example, the U.S. Army has accelerated its acquisition of guided rockets and now intends to purchase a total of 44,000 rockets through 2019.¹¹⁸ Deducting the 3,000 rockets that have been fired to date leaves a U.S. worldwide inventory of 41,000 rockets. If the U.S. Army were to deploy two-thirds of its rocket artillery systems, it would comprise a mix of 250 High Mobility Artillery Rocket Systems (HIMARS), each capable of launching six rockets per salvo and 150 M270s, each capable of launching 12 rockets per salvo. These 400 launchers could then fire a total of 3,300 rockets in a single salvo. The entire

¹¹⁸ U.S. Department of Defense, *Guided Multiple Launch Rocket System/ Guided Multiple Launch Rocket System Alternative Warhead (GMLRS/GMLRS AW)*, Washington, D.C., Selected Acquisition Report RCS: DD-A&T(Q&A)823-260, March 18, 2015a; Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, *Program Acquisition Cost by Weapon System: United States Department of Defense Fiscal Year 2019 Budget Request*, Washington, D.C., February 2018b; and Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA[ALT]), *Weapon Systems Handbook 2016: America's Army: Winning in a Complex World*, Washington, D.C., April 18, 2016.

worldwide inventory therefore would provide enough rockets for an initial salvo and 11 reloads. Whether this is enough rockets will depend on how intensely DoD expects to use them.

These and other improvements that NATO will need to make to its posture, infrastructure capabilities, forces, and equipment and munitions are shown in Figure 3.5. Short-range air defenses also need to be rebuilt and integrated with U.S. armored, Stryker, and infantry forces to protect them from attack by Russian fixed- and rotary-wing aircraft. Although Russian aircraft are no match in quality or numbers to NATO air forces, they will be able to operate under the protection of an integrated air defense early in the campaign. Therefore, during this crucial phase, U.S. and NATO ground forces will need organic air defenses.

Figure 3.5. Required NATO and U.S. Investments

<u>Posture</u>	<u>Forces</u>
<ul style="list-style-type: none"> • 3 armored bdes, 4 infantry/mech bdes, Div hq, 2 fires and 2 aviation brigades to reinforce Baltic States before D-day • Prepared defensive positions for “Blunt” force • Pre-positioned munitions and heavy equipment for “Blunt” and 4-30s “Surge” reinforcements 	<ul style="list-style-type: none"> • Short-range air defense units • Medium and long-range rocket artillery brigades • Electronic warfare • Air and missile defenses to protect theater bases, air- and seaports, and logistics networks
<u>Infrastructure Capabilities</u>	<u>Equipment/Munitions</u>
<ul style="list-style-type: none"> • Improved air- and sealift to speed “Surge” forces from home bases to theater • Improved air- and seaports to receive incoming forces and sustainment • Improved road and rail infrastructure to speed incoming forces and material to battlefield • Ready bases to accommodate “Blunt” forces in defensive positions and equipment for “Surge” reinforcements 	<ul style="list-style-type: none"> • Artillery and air-delivered anti-personnel and anti-armor area effects weapons • Long-range anti-ship missiles • Long-range SEAD missiles • Advanced airborne sensors • Increased war-fighting stocks of artillery rockets, air/missile defense missiles and radars, air-delivered long-range missiles

NOTES: bde = brigade. mech = mechanical. Div hq = division headquarters.

The U.S. Army and USAF also need to recreate the electronic warfare capabilities that they have drawn down since the end of the Cold War. Russian forces have the ability to locate and target U.S. radars, command posts, headquarters and other units that emit electromagnetic

radiation with relatively simple direction-finding techniques. These capabilities need to be brought back into U.S. units so that they can similarly target and hit Russian forces.

In addition to the forces mentioned earlier, NATO will need prepared defensive positions for the blunt force to be postured in the Baltics. Pre-positioned equipment sets are needed to ensure that reinforcements can arrive in time to make a difference on the battlefield. And sufficient munitions, including the artillery rockets mentioned earlier, will need to be stockpiled in the United States and Europe to support extended combat operations for air, sea, and land forces.

Deploying and supporting the blunt and surge air and ground forces will almost certainly require a more robust basing and logistics infrastructure than currently exists in central Europe. Improvements to German and Polish air and seaports will likely be needed to receive incoming forces and to sustain ongoing combat operations. Bases able to accommodate the blunt and surge forces must be established, and those bases will need to be hardened, distributed, and defended to mitigate the effects of Russian attacks.

The air- and sealift to transport forces to Europe, as well as the road and rail networks to transport them to their combat locations, will need improvement. The capacity of each mode must be sized to meet the operational timelines for the needed reinforcement arrivals. Each link and node in the logistics infrastructure also must be hardened or diversified to make the system able to withstand damage or disruptions because of Russian kinetic or cyberattacks.

The types of munitions available to NATO also will be important. U.S. and allied artillery and air forces will need area-effects weapons like the Dual-Purpose Improved Conventional Munition to quickly stop Russian ground forces fighting a mobile battle with dispersed units. (A new generation of such weapons will be needed to be effective in the face of new Russian armor and active defense systems and to reduce the dud rate to acceptable levels.) Although the United States is not yet a signatory to the Ottawa Convention on land mines and cluster munitions, it has stopped producing these weapons and embarked on a significant effort to develop weapons with dud rates complying within the specified limits of 1 percent. However, these weapons remain under development and it will be years before they can be purchased in the quantities needed to stop an armored invasion. In the meantime, the United States must carefully consider whether to rebuild its cluster munitions inventory to counter a potential Russian invasion. Important to this decision will be an assessment as to whether the humanitarian benefits of reducing the unexploded munitions hazard outweigh the additional military and civilian casualties that may be incurred in a war.¹¹⁹

The United States and its NATO allies also will need to expand their purchases of long-range and precision munitions. The warfighting stocks of artillery rockets and air-delivered long-range missiles of all types must be sized to sustain what could be a lengthy campaign to evict invading

¹¹⁹ Ironically, even if the United States and NATO forego the use of cluster munitions and land mines—possibly at the cost of incurring additional casualties—they may still find themselves dealing with unexploded ordnance from Russian mines and submunitions. The worst of ironies would be if Russia were to win (in part because NATO did not use cluster munitions) and the Russian Army (victorious in part because it did use cluster munitions) compelled defeated NATO troops to clean up these unexploded Russian weapons, which are likely to have a much higher dud rate than U.S. or NATO munitions.

Russian forces. Rocket artillery munitions; Patriot, THAAD, and other air defense missiles; and anti-armor munitions will all be in short supply. These stocks may take years to build and must be purchased now ahead of a potential conflict.

The United States and its NATO allies should focus on improving their effectiveness at finding and destroying or suppressing the Russian air defenses that would deny NATO air forces from accessing or operating in the Baltics. One of the main threats to NATO's air forces is the high-quality Russian air defenses located in Kaliningrad or moving forward with advancing Russian ground forces. These defenses are up to three levels deep; beginning with long-range Russian S-300 and S-400 systems, which are protected by such medium-range systems as the S-15, which in turn are protected by short-range air defenses like the Pantsir. A significant portion of the U.S. and allied effort will consist of suppressing these systems. This is a difficult and dangerous mission and will almost certainly consume a greater portion of the allied air effort—and cause more losses—than similar tasks in ODS. (As an example, roughly 20 percent of targets on the Master Target List for the allied air effort in ODS were associated with strategic air defenses and SAMs. The coalition lost 38 aircraft to these Iraqi defenses.)¹²⁰

Several investments might help to mitigate these losses. First, the United States and its NATO allies should invest in the very best signals intelligence systems to detect, locate, and target hostile radar systems. All NATO powers should support this acquisition in an urgent manner. Second, the United States and its NATO allies should acquire long-range anti-radiation missiles able to engage advanced Russian SAMs while their parent aircraft remain outside the SAMs' lethal radius. Third, the United States and NATO should invest in long-range air-, sea-, and ground-fired missiles with area-effects munitions able to strike mobile SAMs and their radars once they have been discovered and before they can move out of a firing position.

Finally, U.S. forces will need smaller-footprint, mobile C2 nodes that can evade Russian targeting and destruction and maintain communications with dispersed units while under electronic attack.

Geopolitical Considerations

Although the United States would provide the bulk of alliance combat capabilities in the Baltics in the near term, NATO member states should begin several initiatives to support those forces, unburden U.S. forces in other areas, and increase their share of NATO's deployable forces in the medium term. Germany, Poland, the Netherlands, and the Baltic states are already improving their physical infrastructure to host more U.S. and NATO equipment sets and combat units and to swiftly move them over roads and railways to where they may need to fight. Further improvements will be needed to air- and seaports, storage sites, and operating bases to increase their capacity and harden them against attack.

NATO member states should make a concerted effort to increase their ability to reinforce the Baltics and other areas of the Alliance, such as the Arctic, the Balkans, the Mediterranean, and

¹²⁰ See Winnefeld, Niblack, and Johnson, 1994.

the Black Sea. This will have several beneficial effects: In the near term, increased allied capabilities across the NATO region will allow U.S. forces to concentrate in the Baltics, where the Alliance is most vulnerable. In the longer term, these improvements will make the burden-sharing more equitable between the United States and its alliance partners and send an unequivocal message of a unified commitment to potential aggressors.

NATO should carefully consider when and how it might offer Sweden and Finland defensive assistance and invitations to join alliance operations. At present, both Sweden and Finland have decided to work more closely with NATO but not to formally join the Alliance. Russian actions that could prompt Sweden to join the Alliance include expanded Russian air and sea operations in Swedish home waters and overt threats to Swedish territory, such as Gotland Island.

Sweden in particular could offer a valuable strategic base for providing logistical support to operations in the Baltic states. NATO seagoing logistics convoys could disembark in Oslo, be transported by road and rail to Stockholm, reembark onto coastal shipping, and arrive in Riga while remaining out of range of missiles launched from Kaliningrad or St Petersburg. In addition, Sweden's unique location could offer valuable bases for fighter aircraft and long-range surface-to-surface missiles. Swedish airbases would offer short flight distances for attacking invading Russian ground forces, as well as access to the Baltics without passing through Russian A2/AD forces based in Kaliningrad. Sweden's Gotland Island is in a remarkably strategic location for launching fires into the air, sea, and land domains and could put Russian air and sea operations within NATO's own A2/AD umbrella.

Summary and Recommendations

To deter Russia from attacking the Baltics, NATO must demonstrate the ability to actually defend them—as well as any other NATO member at risk of attack. As we have described in this chapter, the Estonian, Latvian, and Lithuanian host-nation forces and NATO battlegroups in the Baltics at present would be decisively overmatched by the forces in the Russian Western Military District.

NATO must improve its current posture and its ability to send reinforcements to defeat a Russian invasion should deterrence fail, as shown in Table 3.9. NATO must add three armored and four infantry brigades, along with a division headquarters, artillery, aviation, and other supporting forces to effectively blunt a short-notice Russian invasion. If deterrence fails, NATO will need to surge an additional 30 armored battalions—or ten armored brigade equivalents—and 30 fighter squadrons within 30 days. These armored brigades, together with artillery and attack helicopter reinforcements, would tip the force ratios into NATO's favor.

NATO should begin to deploy the 30 fighter squadrons in its Four 30s surge force as soon as combat begins so that they can achieve a favorable force ratio in the air and begin immediate operations to reduce Russian air defenses and attack advancing Russian ground forces. The United States should be prepared to provide the first six squadrons of the blunt force and 18 of the 30 land-based fighter squadron equivalents for the Four 30s surge reinforcements. These squadrons should include most of the 5th-generation aircraft needed to destroy or suppress

Russian air defenses. In addition to these land-based fighters, the United States would commit the air wings from the three CSGs and bombers mentioned earlier, along with an additional NATO CSG. Some portion of the U.S. bomber fleet likely would be required in a conventional role to help defeat Russian air defenses in Kaliningrad; they also may be needed to deter Russian escalation to tactical nuclear weapons.

Table 3.9. Required NATO and U.S. Forces to Deter or Defeat a Russian Invasion

	Russia	Blunt Forces Needed		Needed 4-30s Surge Reinforcements		Total NATO Blunt + Surge Forces Needed	
	Western MD	Total NATO	U.S. Portion	NATO Total	U.S. Portion	NATO Total	U.S. Portion
Total Ground Troops	185K	78K	69K	118K	61K	196K	130K
Armored Bde/Reg	18	3 ABCT	3 ABCT	10 ABCT	5 ABCT	13 ABCT	8 ABCT
Inf Bde/Reg	11	4 S/IBCT	3 S/IBCT	-	-	4 S/IBCT	3 S/IBCT
Tanks	757	261	261	870	435	1131	696
Artillery	997	190	172	276	154	466	326
Attack Helicopters	115	96	96	144	96	240	192
Fighters	321	144	144	720	432	864	576
Carrier Strike Groups	1	4	3	4	3	4	3

SOURCE: Data are from IISS, 2017.

NOTES: MD = Military District. Bde/Reg = brigade/regiment. Inf = infantry. IBCT = infantry brigade combat team.

NATO should be prepared to commit four CSGs along with long-range ASW patrol aircraft. One CSG would close access through the GIUK gaps by the Russian Northern Fleet, another would counter the Russian Pacific Fleet, and a third would counter the Russian Black Sea Fleet if it should move into the Mediterranean. A fourth CSG should be made available as needed if Russian submarines succeed in penetrating into the Atlantic Ocean. The U.S. Navy should be prepared to provide three of those four CSGs. (The CSG in the Pacific will be included in the Korea total: We will later track that CSG in the Indo-Pacific force.)

Finally, as mentioned previously, the United States will bear a disproportionate share of the burden to defend the Baltics until other NATO nations can rearm. NATO should anticipate that

the United States will tire of maintaining this burden without clear progress by its European allies toward increasing their military capabilities. It would be helpful if NATO agreed to a timeline by which European NATO countries would relieve some of the U.S. burden, especially for the ground and air forces described in this chapter.

4. Countering North Korean Provocations and Weapons of Mass Destruction

North Korea has been a dangerous enigma over the past 65 years. From time to time, North Korea has attacked its neighbors, but then made peaceful overtures; appeared vulnerable to economic collapse, but then showed surprising resilience in the face of famine; maintained a vast war machine assumed to be largely obsolete, but then demonstrated rapid advances in nuclear weapons and ballistic missile technologies. A thaw in its relations with the United States and South Korea appears to have begun with the April 2018 meetings between Moon Jae-in and Kim Jong-un at the demilitarized zone (DMZ) separating North and South Korea and the June 2018 Trump-Kim summit in Singapore. As a result, these leaders promised to work toward complete denuclearization of the Korean Peninsula and President Trump has promised to halt joint military exercises with South Korea “unless and until we see the future negotiation is not going along like it should.”¹²¹

How long this thaw lasts, whether it leads to a continuing improvement in U.S.–North Korean relations, and whether real changes will be achieved in North Korea’s military posture and nuclear programs remains to be seen. The 2018 summit, and, more importantly, the process of dialogue that could possibly emerge from it, could significantly shift the context for defense planning in Korea. However, such an outcome is hardly guaranteed: In fact, given historical North Korean interests and statements, it remains unlikely despite Kim Jong-un’s recent proclamations of a desire for peace. Nonetheless, it is important to recognize that this analysis begins from the strategic situation in place as of May 2018. (It is unclear at the time of this writing how the February 2019 summit, which ended abruptly with President Trump leaving without an agreement, will alter the trajectory of DPRK-U.S. relations. That is, is it a minor setback on the way to an end of hostilities, a return to tenser relations with the United States taking a tougher line, or a diminishment of U.S. influence on the Korean Peninsula?) Dramatic new agreements resulting in real changes—such as severe constraints on North Korean nuclear forces or broader arms reductions in a more comprehensive “peace regime”—would require a modification of this analysis.

Historically, North Korea has proven to be unpredictable, and it is impossible to be certain what North Korea would do as a result of (or to cause) future crises. Therefore, until clear progress is made toward peace on the Korean Peninsula, and so long as the United States remains committed to South Korea’s defense, the U.S. military remains obliged to be prepared to counter a wide variety of threats and potential contingencies. In this chapter, we will point out capabilities that North Korea has built that pose a particular threat to the United States and its

¹²¹ Steve Holland, Soyoung Kim, and Jack Kim, “In Surprise Summit Concession, Trump Says He Will Halt Korea War Games,” Reuters, June 11, 2018.

allies and what they collectively should do in order to be adequately prepared for a resumption of hostilities.

North Korea has improved its nuclear arsenal and long-range missiles with the stated purpose of enabling it to attack the U.S. homeland. If North Korea succeeds in mating these missiles and nuclear weapons, the combination would pose a direct nuclear threat to the U.S. homeland. U.S. nuclear forces should be made sufficient to deter these threats and to extend deterrence to South Korea and Japan.

North Korea's proximity to South Korea provides a range of nonnuclear options with which to coerce the South Korean government, provoke a conflict, or escalate an existing conflict. Apart from its nuclear program, one of the most dangerous North Korean capabilities is its massive artillery force, which is within range of Seoul and other South Korean population centers. This artillery could cause heavy casualties in Seoul and outlying South Korean cities close to the DMZ. An attack could prompt civilians to flee southward, resulting in a humanitarian emergency requiring a relief effort that could potentially become massive. More than 200,000 U.S. citizens living in South Korea, including the families of service members, could be in imminent danger, requiring the U.S. military to be ready to conduct a NEO.¹²² The United States has a security interest in any potential contingencies in which American citizens come under direct threat, whether abroad or in the U.S. homeland.

Thus far, North Korea has proven to be surprisingly resilient, despite decades of predictions of its imminent collapse.¹²³ Still, the United States must prepare for instability in the future and even a potential collapse. Although Kim Jong-un seems securely in power, the North Korean government apparatus could become unstable as a result of war or the reemergence of economic, social, and political pressures. One of the worst outcomes of a North Korean collapse—and the main threat for which the United States should be prepared—would be a nuclear program left unsecured, with weapons and materials open to theft, proliferation, and use.

We consider each of these threats in this chapter and assess the forces and capabilities that might be required to meet each one. We find significant gaps between potential missions and U.S. and allied capabilities—gaps that could be closed with investments in additional capability and capacity on the part of the United States or South Korea, with revised concepts of operations that would seek to fulfill potential missions in new ways, or with geopolitical initiatives designed to change essential aspects of the regional context.

An important assumption of this analysis is that, as long as North Korea threatens the United States with nuclear weapons and as long as the United States remains committed to its alliance relationship with South Korea, Washington may not have much leeway in choosing whether to become involved. In other words, regardless of current U.S. preferences or plans, U.S. defense planning must take seriously the potential requirements imposed by each of these missions.

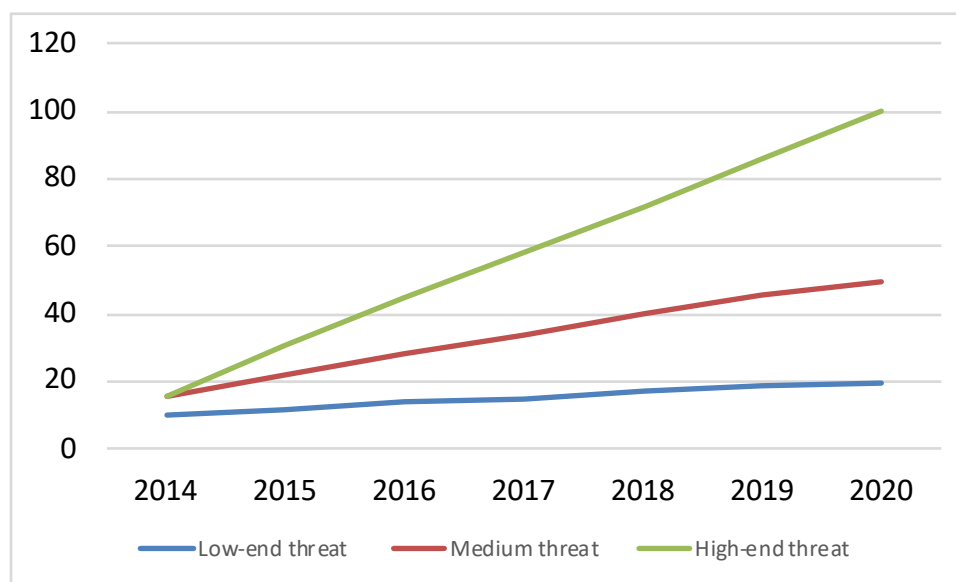
¹²² See Kim Gamel, "U.S. Military Plans Evacuation Drill at Same Time as War Games with S. Korea," *Stars and Stripes*, March 22, 2018.

¹²³ See Andrew Scobell, *Projecting Pyongyang: The Future of North Korea's Kim Jong Il Regime*, Carlisle, Pa.: U.S. Army War College Strategic Studies Institute, 2008.

Countering North Korea's Nuclear and Ballistic Missile Threat to the United States

North Korea is reported to have added a uranium enrichment capability to its plutonium production.¹²⁴ Together, these two sources of fissile materials are estimated to give North Korea the capacity to produce between two and 14 additional weapons each year. In total, North Korea is believed to be capable of producing enough nuclear material to build between 20 and 100 nuclear weapons by 2020 (see Figure 4.1).

Figure 4.1. Estimates of North Korea's Nuclear Weapons Arsenal



SOURCE: Data are from Albright, 2015.

NOTE: These estimates are based on the amounts of plutonium and uranium North Korea is believed to be capable of producing by 2020 given their proven facilities, as well as their efficiency in building weapons from these materials.

The differences in these estimates are important. A small arsenal of 20 weapons, if mated with ballistic missiles, would provide North Korea with sufficient weapons to employ one or two as demonstrations and to hold another 18 in reserve in order to threaten the United States or its allies if they imperil the DPRK regime's survival. For demonstration purposes, a nuclear weapon might be exploded at high altitude, perhaps over the Pacific Ocean, to prove North Korea's ability to successfully mate, launch, and detonate a nuclear weapon onboard a ballistic missile. Such a demonstration would serve as a warning to the United States and other potential adversaries that North Korea is both able and willing to use nuclear weapons against its enemies.

¹²⁴ Ankit Panda, "Exclusive: Revealing Kangson, North Korea's First Covert Uranium Enrichment Site," *The Diplomat*, July 13, 2018.

As noted, the remaining reserve weapons could be used to threaten South Korea, Japan, and—once the DPRK possessed credible means of long-range delivery—the United States with nuclear strikes if the United States moved directly against North Korea’s regime. Targets could include population centers of nations directly participating in any action against North Korea or of nations allowing their bases to be used to support warfighting operations. With only a small force, and given past public statements to this effect, North Korea would perhaps be most likely to launch an attack in one coordinated salvo to maximize the probability that at least some of the missiles and warheads functioned properly and made it through allied ballistic missile defenses. Perhaps to demonstrate such a capability, North Korea has practiced salvo launches of its missiles over the past several years.¹²⁵

A medium-sized arsenal of between 50 and 100 weapons would provide North Korea with added weapons for coercive threats and tactical warfighting. In addition to a weapon or two for demonstration purposes and about 20 weapons to assure regime survival, between 30 and 80 weapons could be devoted to a range of strike missions. These weapons could be employed to attack theater air bases or ports to disrupt U.S. force flow, and such strikes could be threatened before a conflict to discourage Japan and South Korea from allowing the United States to use their bases. Once a war was underway, these weapons could be launched on rockets, delivered by aircraft, or employed as underground atomic demolition munitions (i.e., “nuclear land mines”) to attack massed ground formations advancing into North Korea. In addition to partly offsetting U.S. and South Korean superiority in conventional arms, a tactical nuclear arsenal would serve as an intermediate rung in the escalation ladder. That is, by employing these weapons against conventional forces, North Korea would signal that it intended to fight to the finish and inflict maximum damage on its adversaries. Its aim would be to create significant doubt about the viability of an advance into North Korean territory.

Along with its nuclear program, North Korea has defied United Nations (UN) sanctions by launching several long-range ballistic missiles into the ocean, some in the direction of Japan. A series of these launches, a salvo of four, was claimed by North Korea to be practice for striking U.S. bases in Japan.¹²⁶ North Korean officials have declared their intent to develop an ICBM with the range to reach the U.S. homeland, and 2017 tests have shown North Korean missiles to have an estimated range of approximately 10,000 km.¹²⁷ Some experts speculate that North Korea may succeed in developing the necessary reentry technologies to successfully integrate its nuclear weapons with its long-range missiles within the next five to ten years.¹²⁸

¹²⁵ Jeffrey Lewis, “North Korea Is Practicing for Nuclear War,” *Foreign Policy*, March 9, 2017.

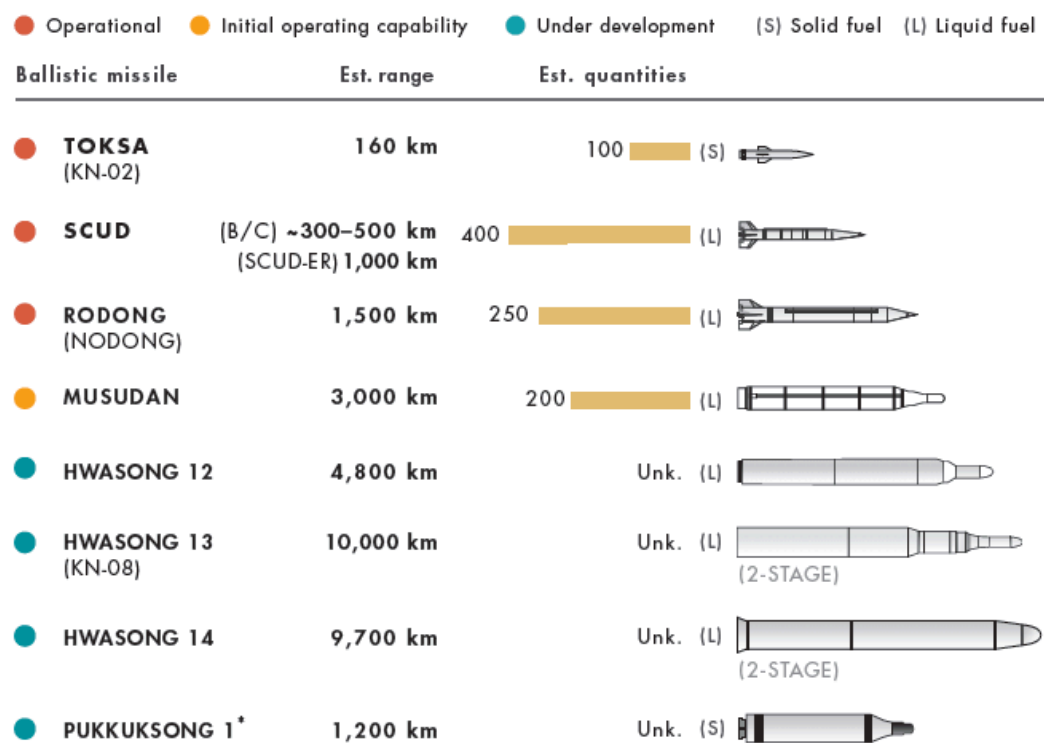
¹²⁶ Anna Fifield, “North Korea Says It Was Practicing to Hit U.S. Military Bases in Japan with Missiles,” *Washington Post*, March 6, 2017.

¹²⁷ Fifield, 2017; Center for Strategic and International Studies, “Missile Threat CSIS Missile Defense Project: Missiles of North Korea,” 2017.

¹²⁸ Joby Warrick, Ellen Nakashima, and Anna Fifield, “North Korea Now Making Missile-Ready Nuclear Weapons, U.S. Analysts Say,” *Washington Post*, August 8, 2017.

As shown in Figure 4.2, North Korea’s arsenal of Scud, Nodong, and Musudan missiles, with ranges from 300 to 3,000 km, allow it to hit all of South Korea. (Chinese and Russian cities also could be at risk, if for some reason North Korea wished to target them.) At 1,000 km, the SCUD-ER missile also could hit cities in southern Japan. The Nodong missile extends North Korea’s reach to all of Japan from its northeast bases. The *Scud* and *Nodong* classes of weapons have been under development for years, have been extensively tested, and are believed to be fairly reliable, although their accuracy is not precisely known in the open-source literature. The Hwasong-13 and -14 missiles, once operational, are projected to be able to reach Alaska, Hawaii, and perhaps significant portions of the continental United States.

Figure 4.2. Potential Ranges of North Korean Ballistic Missiles



SOURCES: Adapted from Michael J. Mazarr, Gian Gentile, Dan Madden, Stacie L. Pettyjohn, and Yvonne K. Crane, *The Korean Peninsula: Three Dangerous Scenarios*, Santa Monica, Calif.: RAND Corporation, PE-262-A, 2018, p. 3 using data from Center for Strategic and International Studies, 2017.

NOTE: The asterisk notes that our counterforce capabilities will also need to address nuclear weapons employed by submarines or covert operations.

Given the growing threat of North Korean nuclear-tipped missiles to the United States—as well as to U.S. allies, facilities, and citizens throughout the region—from time to time, both U.S. officials and outside experts have signaled the potential for military action if diplomatic means do not resolve the issue. Such a strike represents one potential U.S. mission on the Korean Peninsula.

Striking some portions of North Korea's ballistic missile development effort could be fairly straightforward. Although test articles could be launched from mobile vehicles, the complete long-range test systems have been launched from fixed facilities. These launch facilities should be easily identifiable and must be in the open in order to perform their function, making them especially susceptible to air strikes. The missile, subcomponent, and fuel production facilities may also be in the open; but they could be disguised or camouflaged, located within civilian areas, or may even have portions of their facilities in hardened, underground locations. The U.S. intelligence community should be able to identify at least some of the various facilities conducting fabrication work, but concealment, hardening, and comingling with civilian populations may complicate the targeting process and limit the effectiveness of any attacks. Some static elements of the North's nuclear production complex, such as uranium enrichment, plutonium production, and nuclear research facilities, would be vulnerable to preemptive strikes as well. As far as can be determined from unclassified sources, such strikes would appear to be well within the capability of existing South Korean, U.S., and allied aircraft, precision-guided munitions, and cruise and ballistic missiles.

Although it is plausible that airstrikes could disable or destroy test and production facilities, destroying North Korea's completed mobile missiles poses a much greater challenge. The United States and its allies have had very little success attacking mobile Scud launchers before they fired their missiles. In ODS, for example, the U.S.-led coalition had no reported success in destroying Iraqi Scud missiles prior to launch, despite conducting nearly 2,500 air sorties in the "Scud hunt."¹²⁹

This dismal record improved only slightly in OIF. The Combined Forces Air Component Commander dedicated an average of 72 coalition aircraft fighter sorties per day (10 percent of total daily sorties) to "suppress[ing] Iraqi [Theater Missile Defense]/WMD delivery systems" and "neutralizing/controlling WMD infrastructure and [sensitive site exploitation]."¹³⁰ In total, the coalition struck 832 desired mean points of impact (DMPIs) suppressing WMD delivery systems and executed 102 missions against WMD as time-sensitive targets (TSTs).¹³¹ Special operations forces also were employed in western Iraq to hunt for Scud missiles.¹³² The result was the destruction of only four mobile missiles on their launchers, with three mobile missiles struck at the very beginning of U.S. air operations (and presumably before Iraqi forces knew the war

¹²⁹ Winnefeld, Niblack, and Johnson, 1994.

¹³⁰ T M. Moseley, *Operation Iraqi Freedom: By the Numbers*, Shaw Air Force Base, S.C.: Combined Forces Air Component, Assessment and Analysis Division, April 30, 2003, p. 4.

¹³¹ The OIF air campaign struck a total of 19,898 DMPIs and executed four missions against terrorists and 50 against Iraqi leadership as TSTs.

¹³² Gregory Fontenot, E. J. Degen, and David Tohn, *On Point: The United States Army in Operation Iraqi Freedom*, Fort Leavenworth, Kan.: Combat Studies Institute Press, 2004.

had started, so moving without wartime precautions), and one more destroyed over the course of major combat operations (with two more launchers reported destroyed).¹³³

A mobile ICBM would be significantly larger than the Scud missiles that Iraq shot at U.S. and coalition forces. It requires a much longer and heavier launch vehicle, and the wheeled versions must move on good roads, of which there are few in North Korea. Furthermore, their hiding sites will need to feature long and fairly large tunnels for entrance and exit of the launchers. Together, these features should make it easier to spot ICBM launchers and their hiding sites. On the other hand, the forested, mountainous terrain in North Korea presents a much more formidable targeting challenge than the flat deserts of Iraq. Moreover, North Korea has become expert at building hardened underground bunkers and is believed to have thousands of bunkers hidden in the mountains. If North Korea uses such bunkers to hide ballistic missiles, it may be possible for them to swiftly emerge and fire their missiles before the tunnel has been identified or before the emerging missile can be targeted by U.S. aircraft. With nuclear weapons, one such successful shot is enough.

Finding nuclear weapons detached from launch systems would present even greater difficulties because they are relatively small, can be shielded to reduce their radiation signature, and can even be disassembled to better hide them. Furthermore, their component parts remain an extremely grave proliferation risk even if the missiles are damaged in an airstrike. (For example, even if a weapon is struck with high explosives, the refined fissile materials at its core could be collected and reused.) Nothing short of a comprehensive search on the ground is likely to succeed in finding and securing these weapons once they are moved from their production sites—a fact that was acknowledged by DoD in 2017.¹³⁴

Any preemptive attack on North Korean nuclear facilities or weapons, moreover, would pose significant risks of escalation. North Korea has repeatedly threatened retaliatory attacks in response to such a step, which poses a significant dilemma for U.S. leaders: To escalate further in response would risk all-out war and perhaps the North Korean use of any remaining nuclear weapons; to stand pat would leave North Korea with the strategic initiative and potentially allow any casualties from North Korean retaliatory strikes to go unpunished. Planners of such strikes confront a related dilemma: To undertake a very small attack would at best delay the North Korean program by several years, while launching more-comprehensive strikes—against sites including North Korean C2 and leadership targets—would be indistinguishable from the early stages of an all-out U.S. and South Korean decapitation attack. Even a small U.S. attack could lead North Korea to believe it has only one chance to shock Washington and Seoul into backing off, thus prompting Pyongyang to escalate.

¹³³ 32nd Army Air and Missile Defense Command, “Operation Iraqi Freedom: Theater Army Air and Missile Defense History,” Fort Bliss, Tex., September 2003, p. 3. Three transporter erector launchers (TELs) were destroyed by airstrikes on February 13, 2003, before war was declared, as they moved south of the 32nd parallel (and so became legitimate targets within the no-fly zone). Three other TELs were reported as destroyed during combat operations by Predator drones on Iraq Route 6—one with a missile still onboard, and the other two post-launch.

¹³⁴ Dan Lamothe and Carol Morello, “Securing North Korean Nuclear Sites Would Require a Ground Invasion, Pentagon Says,” *Washington Post*, November 4, 2017.

In short, any effort to preemptively destroy North Korea's nuclear arsenal, or a significant part of it, would run extreme escalatory risks. Shortcomings in U.S. and allied abilities to conduct such an attack stem from the inherent difficulties in terrain, intelligence, and targeting that are likely to remain, regardless of U.S. defense investment strategies.

Therefore, we recommend a revised strategy for dealing with the North Korean nuclear threat. It combines efforts to

- constrain North Korean capabilities through negotiations, knowing that the effort will be imperfect
- deter North Korean aggression against the United States and South Korea through continued clarity in deterrent statements and improvements in specific capabilities
- develop technologies to mitigate the threat of North Korean nuclear-tipped missiles in the future.

During the administrations of Clinton, George W. Bush, and Obama, the United States had a strategy toward North Korea that combined elements of containment with various incentives for nonaggression. It offered the North the prospect of relief from economic sanctions in exchange for verifiable denuclearization. The strategy sought to deter excessive troublemaking, preserve a unified group of diplomatic partners, and encourage China to exert its presumed leverage on Pyongyang (despite Beijing's insistence that its influence was overestimated). The strategy, which was marginally better than any available alternative, neither risked precipitating a war nor required unacceptable concessions. Yet North Korea's nuclear arsenal and missile program have both continued to expand.

The Trump administration has adopted a new strategy: one of increased threats first and then personal presidential diplomacy. Our assessment of the U.S. options suggests that the new policy should be based on several foundations.

The long-term strategy to contain North Korea and deter aggression remains appropriate. U.S., South Korean, and Japanese policy has assumed that, at some point, North Korea would cease to exist and the peninsula would be reunified. Natural trends—e.g., the flow of information into the DPRK, the decaying legitimacy of the Kim dynasty, and the marketization of the DPRK economy—may slowly bring this about. This strategy worked in the Cold War: Contain and await transformation.

The goal of U.S. nuclear policy should be to keep this long-term strategy from being invalidated. This analysis suggests that, as desirable as an immediate dismantlement of the North's nuclear capability might be, no near-term solution is available at acceptable cost. U.S. policy can aim to reduce the risk of North Korean attack through diplomacy, attempt to win specific North Korean concessions, and avoid backing any actor into a corner. The policy should rule out—at least in internal deliberations, if not public pronouncements—preventive war and preemptive strikes.

The United States can settle on specific, mostly quiet activities to demand from China as a signal of its commitment to dealing with the issue. Beijing will not “cut off” North Korea, but it might be persuaded to crack down on any missile-related technologies, send specific

coercive signals (such as refusing DPRK coal), and encourage civilian and military leaders to join in multilateral dialogues about escalation control and crisis management.

U.S. policymakers can then seek specific, targeted concessions from North Korea to slow the clock on its most destabilizing nuclear advances while retaining the goal of denuclearization. These concessions could include deferring further ICBM tests, new nuclear tests, or fresh provocations. China and the ROK government would make clear that better ties are contingent on such restraint. The United States would then work with the ROK government and China to begin a long-term dialogue with North Korea on more-complete disarmament over time.¹³⁵

Now and for the foreseeable future, the United States should enhance its regional deterrence and crisis-management capabilities. It can reiterate, with allies and others, the actions that would promote decisive responses and bolster local deterrent and active defense capabilities. Because conflict is more likely to emerge through unintended escalation, the United States can increase exercises and dialogue with allies and China to enhance the shared picture of how escalation could happen, build processes and procedures for managing it, and develop new crisis-management channels with those countries and North Korea.

This strategy amounts to using negotiation to slow North Korea's nuclear ambitions—and reduce the direct threat such ambitions pose to the United States—while strengthening deterrence and investigating the potential for longer-term ways of mitigating the North's missile-borne nuclear threat. Additional capacity or capabilities seem unlikely to change the essential dynamic surrounding the North's nuclear program. This specific mission therefore does not highlight major gaps in U.S. capabilities, although it does point to several possible additional investments at the margins:

The United States should enhance its ISR capabilities on the peninsula to gain the sharpest possible insight into the status and deployment of North Korea's nuclear forces. That picture is never likely to be clear enough to support anything like a preemptive attack. But in the event of conflict through miscalculation or accident, the United States will want the best possible information about North Korean nuclear capabilities, ranging from production sites to deployed weapons (as well as related assets, such as C2 facilities).

DoD should ensure a sufficient supply of preferred munitions for any possible contingencies in Korea. U.S. commanders on the peninsula have historically expressed concern about this issue. Ensuring an adequate supply of the most up-to-date munitions is not an expensive proposition and would improve U.S. forces' capacity for conflict.

DoD should carefully develop a range of operational concepts for neutralizing a DPRK nuclear force of 100 to 120 weapons spread across multiple delivery means. At the moment, the default approach involves a combination of offensive capabilities (similar to the approach used in OIF and the "kill chain" under development by the ROK) combined with ground- and

¹³⁵ The rapprochement between North and South Korea beginning in April 2018 may be the start of such promising dialogues. Only time will tell.

sea-based missile defenses.¹³⁶ Given current technologies and DPRK concealment techniques, there seems to be little possibility that this layered approach could offer future U.S. or ROK leaders a reliable option for neutralizing the DPRK arsenal. Preemptive strike technologies are destabilizing and would potentially encourage the DPRK to adopt an even more hair-trigger launch-on-warning posture. Therefore, DoD should develop a new set of concepts and technologies able to contribute more to neutralizing the DPRK force. Attack options, along with missile defenses, would likely provide only a partial solution. The goal would be to raise the costs and risks to North Korea of employing their nuclear forces.

Any war plan that assumes the automatic transition of operations from South Korea into North Korea, with the goal of regime change, must be reassessed. Open sources suggest that U.S. war plans in Korea have long assumed that the endgame of a full-scale war would be entry into North Korea and comprehensive victory against the regime. Such plans may soon be infeasible because the DPRK is likely to retain a nuclear reserve force capable of threatening to destroy South Korea's major cities and do other damage if the regime believes its survival is truly at stake. Part of the response to North Korean nuclear forces can therefore be innovation in operational concepts and considering a broad range of war plans, some of which do not assume "going North" in the event of major conflict.

DoD must be able to provide the President with multiple options in the event of escalation or full-scale war, options that take into account nuclear escalatory possibilities. The United States and the ROK will no longer be in a position of deciding to "turn the key" on a default and elaborate war plan. Even in a major conflict scenario, they will likely be finding their way through a complex set of options and decisions. DoD should therefore develop a wide range of options, supported by scenario analysis, to inform this range of choices.

The United States should expand bilateral crisis-management links with the DPRK. The risk of miscalculation in an escalatory situation is very great, and the lack of reliable channels of communication significantly exacerbates that risk. In a nuclear crisis, decisions to employ nuclear weapons could be made in a matter of minutes. During the Cold War, the United States and the Soviet Union set up a "red phone" to address such emergencies. The United States needs such an assured means of communicating messages directly to the North Korean leadership. Establishment of such a communications link can be part of a broader initiative to enhance crisis stability.

Countering Long-Range Missiles

North Korea has a significant store of chemical weapons that it is likely able to employ with ordinary artillery, and perhaps with ballistic missiles, although the latter capability has not been

¹³⁶ Kyle Mizokami, "This Is How South Korea Plans to Stop a Nuclear Attack from North Korea," *The National Interest*, July 10, 2017.

demonstrated in public.¹³⁷ If North Korea were to successfully mate these chemical weapons with ballistic missiles, it could threaten to use them to attack air- and seaports and military bases throughout South Korea and Japan. Although North Korea has not demonstrated its mastery of such persistent chemical agents as VX, it has demonstrated crude chemical capabilities to intimidate Japan. Unsophisticated chemical weapons of the type employed by Iraq in the Iran-Iraq War or by Syria in its civil war might be used in a larger and more systematic way for coercive purposes.¹³⁸ North Korea could demand that South Korea or Japan deny the United States use of their bases, then perhaps launch missiles with conventional warheads to demonstrate reach and intent and threaten to follow them with chemical weapons. North Korea also could threaten to use these missiles to launch chemical terror attacks against civilian population centers within range.

North Korea has an estimated 900 short-, medium-, and intermediate-range ballistic missiles that can reach targets from 160 km to 3,000 km. These include 36 300 mm artillery rocket launchers (with an unknown number of reloads) and an estimated 100 Toksa (KN-02) missiles with 160-km range. Both of these systems are capable of hitting airports at Incheon, Gimpo, Seoul, Suwon, Gangneung, Osan, Jungwon, and Seosan. The Scud B/C can strike all the way to Busan, while the Scud ER also can strike targets in the western half of Japan. The estimated 450 Nodong and Musudan missiles bring all of Japan within range of North Korea. See Table 4.1.

At present, South Korea does not have a good counter to an attack using these ballistic missiles. It can muster only 48 PAC2 guidance-enhanced missile (GEM) launchers and three Aegis destroyers to defend itself and has traditionally relied on its defense treaty with the United States to deter North Korea from launching conventional, chemical, or nuclear attacks. Although this is appropriate to deter a North Korean nuclear threat, it is questionable whether the United States would use nuclear weapons in response to a North Korean chemical attack (and, if the United States did, it is possible that North Korea would then use nuclear weapons against South Korea). South Korea is developing a new kill chain concept to attack North Korea's ballistic missiles before launch, although these kinds of preventative counter-theater ballistic missile attacks will suffer from the same limitations that such operations have experienced in the past.¹³⁹

Japan has more-significant capabilities, with 120 PAC2 GEM/PAC3 launchers capable of defending against Scud ER. However, these systems are likely too few with too small of a defended area to counter the 450 Nodong and Musudan missiles that can hit anywhere in Japan.

¹³⁷ Office of the Secretary of Defense, *Military and Security Developments Involving the Democratic People's Republic of Korea: Annual Report to Congress*, Washington, D.C.: U.S. Department of Defense, 2012.

¹³⁸ Iraq's chemical weapons proved to be somewhat clumsy in operations against Iranian ground forces in the field, requiring large amounts of mustard and sarin to saturate small areas. However, attacks against ports and airfields using even such crude weapons might be useful for the purposes of intimidation. It is likely that defending against such attacks would become a priority for the South Korean and Japanese militaries. See Javed Ali, "Chemical Weapons and the Iran-Iraq War: A Case Study in Noncompliance," *Nonproliferation Review*, Vol. 8, No. 1, Spring 2001.

¹³⁹ Jeff Jeong, "South Korea Quietly Orders 90 More Taurus Bunker-Busting Missiles," *Defense News*, March 13, 2018.

The six Japanese Aegis ships, if fitted with the appropriate SM-2, -3, and -6 missiles, can help defend against these threats. But, even if all six could be put on station for an extended period, there is a limit to how much of Japan's territory could be defended.

Chemical weapons also might be carried by some of the 545 North Korean combat aircraft. Any chemical-capable North Korean aircraft might be masked by other North Korean aircraft in flight. In addition, North Korean combat aircraft, attack submarines, and warfighting naval vessels pose a risk to Aegis ships deployed at sea in a BMD role. For all of these reasons, South Korea's and Japan's air and naval forces will need to patrol air and sea-lanes around North Korea to intercept any ships or vessels attempting chemical attacks or posing potential threats to missile defense forces.

South Korea and Japan could significantly improve their defenses against ballistic missile attack. Defense of their citizens and territory is, of course, primarily their responsibility. South Korea and Japan would need to purchase many more interceptors; update their concepts for operating in the presence of nuclear, biological, and chemical weapons; and improve their civil defenses to mitigate the harm of WMD used against their civilian populations.

Table 4.1. Long-Range DPRK Threats, Current ROK and Japanese Defenses, and U.S. Reinforcements

DPRK Threats	Defensive Systems		
	RoK	Japan	USFK (Reinforced)
Artillery <300km:136 SCUD B/C/ER:450	48 PAC2 GEM 3 Aegis DDG		100 - 240 PAC2 GEM/PAC3 10 - 24 THAAD
IRBM: 450		120 PAC2 GEM/PAC3 6 Aegis CG/DDG	21-42 Aegis CG/DDG
ICBM-SLBM Under development			(44 GMD-CONUS)
Aircraft: 545 combat 1400 all types	487 Fighters 16 Long-range ASW	347 Fighters 75 Long-range ASW	576 Fighters (land) 160 Fighters (sea) 122 Long-range ASW 30 Global Hawk 150 Predator
Attack subs: 72 SSBN: 1	23 Attack Subs	19 Attack Subs	13 Attack Subs
Ships: ~380 combat ~700 all types	23 Surface Combatants	50 Surface Combatants	2 Carrier Strike Groups

SOURCE: Data are from CSIS, 2017; and IISS, 2017.

NOTES: USFK = United States Forces Korea. IRBM = intermediate-range ballistic missile. SSBN = ballistic missile submarine. DDG = destroyer. CONUS = continental United States.

It may be in the U.S. interest to deploy more of its ground- and sea-based defenses to help. For example, if North Korea were to threaten missile strikes against South Korea or Japan in response to a U.S. strike on North Korea's ballistic missile development, then the United States might feel inclined to offer some assurances, including augmenting its allies' missile defenses. More broadly, the United States might offer missile defenses in return for access to South Korean and Japanese bases in a variety of Korean contingencies. This would parallel U.S. operations during OIF, when the Army surged 40 batteries of Patriot missiles to defend coalition forces and the territory of U.S. allies and partners in the region who provided base access or support to U.S. operations.

Assuming an average of six launchers per battery, a similarly sized force in Korea and Japan would comprise 240 launchers, or 60 percent of the total U.S. force of 400. If the United States surged 60 percent of its THAAD force, it could surge four (of six or seven batteries) and 24 launchers to regional defenses. For prolonged deployments of an indefinite length, DoD standard is to deploy at a 1-to-3 (months deployed to months home) rate. This would reduce the available U.S. force to 25 percent of the total, or 100 PAC2/3 launchers and ten THAAD launchers.

The U.S. Navy should be able to deploy 21 of its 85 Aegis cruisers and destroyers at a 1-to-3 ratio, or up to 42 Aegis ships if it surges 50 percent of its total force. The United States has improved the missile defense capabilities of Aegis cruisers and destroyers and sold this technology to South Korea and the Japanese Maritime Self-Defense Force. The United States and South Korea, as well as the United States and Japan, can sustain BMD patrols near potential target areas with guidance assisted by a large and powerful seagoing missile tracking radar. South Korean, Japanese, and U.S. air and naval forces would be needed to protect the Aegis ships from North Korean submarines, surface ships, and aircraft.

Securing "Loose Nukes" in the Event of a DPRK Regime Collapse

North Korea's nuclear weapons could imperil the United States and its allies if they were transferred to rogue states or violent extremist groups. North Korean officials might sell nuclear weapons or materials, although such a choice would be very risky for the regime and could expose them to counterforce attacks if their nuclear program were found to be the source of weapons used by terrorists. Nuclear weapons also could be lost or stolen if the government were to collapse.

It is not the purpose or intention of this analysis to predict the collapse of North Korea. As mentioned earlier, past predictions of an imminent DPRK collapse have been premature. However, it is prudent to have plans in place to hedge against the possibility of precipitous and calamitous events, such as the collapse of the North Korean government. This collapse could be caused by a conflict among military and ruling elites, perhaps beginning with a coup against Kim Jong-un, followed by open warfare among would-be successors and the military units supporting them. The ruling regime might collapse from economic and social pressures, such as a crop failure followed by famine. Finally, a war on the Korean Peninsula might end with the fall of the DPRK regime.

Whatever its cause, a collapse of the DPRK regime could lead to North Korean populations in distress, reflexive attacks by remnants of North Korean military forces, and the loss of control of nuclear weapons, fissile materials, and other dangerous items from the massive North Korean WMD program. It is prudent for South Korea, the United States, China, and other interested parties to discuss what each country would do in such a contingency, when it would begin operations, and which confidence-building measures it would agree to implement with other concerned states. China has been reluctant to engage in such discussions, although it has not ruled out the possibility of discussions if and when necessary.¹⁴⁰

Knowing when South Korea, the United States, other allies, and China should actually begin a combined operation would not be clear-cut. Central DPRK regime control could slowly erode rather than evaporate all at once, and it might not be immediately apparent when the North Korean government ceased to function. Clear indications of chaos within North Korea and general agreement among intervening nations would be crucial: Attempts to enter North Korea too early would risk starting a war; entering North Korea too late would allow the suffering of civilian populations to worsen and make the task of finding and securing loose nukes harder.

South Korea, the United States, China, and perhaps other allied nations will have several objectives in responding to a North Korean collapse. They may allocate forces as shown in Table 4.2. South Korea may first need to address a massive flow of refugees trying to move into the South. Although many of its citizens may wish to unite the two peoples and territories into one Korean nation, South Korean leaders may become concerned that former regime elements could attempt to slip into South Korea with hostile or criminal intent. Therefore, South Korea may determine that it must close its border to control movements of refugees and other people crossing from the North while it grapples with the monumentally difficult task of uniting the peoples of the North and South.

This would require a significant effort and a dedicated security force. The limited available numbers to inform an estimate include the border patrol of 50,000 paramilitary troops that East Germany imposed to prevent its citizens from escaping to West Germany during the Cold War, although South Korea's purposes would be very different, and it would presumably want to avoid the use of lethal force.¹⁴¹ Securing the border with a collapsed North Korea might include providing assistance to desperate refugees and countering those trying to enter for nefarious or illicit purposes.

At the same time, South Korea may have to build and maintain sites on the north side of the border to offer humanitarian assistance to displaced persons. Additional troops would be needed to proceed north of the border to provide services, secure refugee settlements, and take control of North Korean military and political organizations.

¹⁴⁰ David Tweed and Ting Shi, "There's One North Korea Taboo China's Leaders Won't Talk About," Bloomberg, September 26, 2017.

¹⁴¹ Gordon L. Rottman and Chris Taylor, *The Berlin Wall and the Intra-German Border 1961–89*, Oxford, UK: Osprey Publishing, February 6, 2008.

One of the first priorities would be to coax North Korean artillery and other military forces out of the Kaesong Heights and other positions within range of South Korea. This would likely include all forces within 60 km north of the DMZ to remove the threat to Seoul and other South Korean population centers. In the best of cases, this would be accomplished peacefully, perhaps with the offer of money or other forms of aid. However, some hard-core military units might refuse to surrender and attack advancing South Korean military elements or Seoul itself.

Table 4.2. ROK, U.S., and Chinese Troops Needed to Deal with a DPRK Collapse

DPRK Issues	Dealing with DPRK Collapse		
	RoK	USFK	China
25 million citizens IDPs and refugees	50K border troops 260K – 400K stabilization troops	-	170K+ troops
5700 short, medium, and long-range artillery with conventional and chemical warheads			-
1M soldiers and 88K special operations forces			-
50 – 100 nuclear weapons 141 Major WMD-related sites Unknown number of garrisons	-	6 ABCT, 13 IBCT, 188K – 250K troops PAC2/3, THAAD 576 Fighters (land) 160 Fighters (sea) 30 Long-range ASW 30 Global Hawk 150 Predator 13 Attack Subs 2 Carrier Strike Groups	-
536 ballistic missiles with conventional or chemical warheads			
Aircraft: 545 combat 1400 all types	487 Fighters 16 Long-range ASW		
Ships: 380 combat 700 all types	23 Attack Subs 23 Surface Ships		

SOURCE: Data are from IISS, 2017, and RAND analysis.

NOTES: USFK = United States Forces Korea. IDPs = internally displaced people.

At best, this campaign would be painstakingly slow and dangerous. South Korean forces would make their way through North Korean minefields and prepared fighting positions on the northern side of the DMZ. As they encountered North Korean military units, South Korean forces would need to disarm and take command of them, feed and care for them, and probably give them carefully monitored tasks to do in support of South Korea's movement north. (Examples of such tasks might include clearing North Korean minefields or other defensive obstacles, removing artillery and munitions from caves and bunkers, and erecting bivouac areas.) Assuming that South Korean forces could clear a depth of 5 km per day, this phase of the campaign would take roughly two weeks.

A movement further north of the Kaesong Heights and other fortified border areas in North Korea might serve several purposes. First, it would enable South Korea and the world to provide relief to what would almost certainly be among the worst of humanitarian catastrophes. A North Korean collapse would most severely affect rank and file workers and soldiers. Without a working government, North Koreans would lose access to food, clean water, and other services, and would be vulnerable to random or organized acts of violence. Second, this movement north would be the initial step that South Korea must take if it wishes to begin reunification. A third, related purpose could be to establish a southerly limit to China's control of North Korean territory. Although South Korea lacks the military capability to directly contest Chinese control, it could move up to China's positions in an attempt to forestall any Chinese movement south. South Korea would likely be on its own in this mission; the United States would be reticent to move its own forces north in a way that might be perceived as a threat by Beijing.

Extending security control north would severely strain the whole of South Korea's military. The ratio of 20 police and military personnel to 1,000 civilians has proven necessary to ensure security and control in past intervention operations.¹⁴² This would imply a need for 500,000 South Korean police and soldiers just to control North Korea's 25 million civilians (or perhaps somewhat fewer if millions fled to China's zone of control). One estimate of the South Korean forces needed for multiple stabilization missions inside a chaotic North Korea produced somewhat lower but still daunting numbers, suggesting a need for between 260,000 and 400,000 troops.¹⁴³ More South Korean troops could be needed to deal with the remnants—and perhaps whole units—of the 1.2 million regular North Korean troops and 8 million paramilitary and reserve troops. This could require a sizable mobilization of South Korea's reserve forces and help from South Korea's air and naval forces.

Given South Korean troop requirements to control its border, demilitarize North Korean areas adjacent to South Korea, and exert control over North Korean military units and populations in these areas, it is unlikely that South Korea would be able to help secure North Korea's nuclear assets while performing these other missions. Moreover, because of limitations attendant to its status as a nonnuclear power under the Nonproliferation Treaty, South Korea has some constraints in its ability to legally take possession of certain nuclear materials and perform other relevant tasks.¹⁴⁴ That mission would therefore likely fall to the United States and any allies that choose to send forces to help.

Given the risks of loss or theft of North Korean WMD, the United States and allies should begin counter-WMD operations as soon as possible. Weapons and materials could be stolen by former regime members from many research and development, manufacturing, testing, and

¹⁴² James T. Quinlivan, "Burden of Victory: The Painful Arithmetic of Stability Operations," *RAND Review*, Vol. 27, No. 2, Summer 2003.

¹⁴³ Bruce W. Bennett, and Jennifer Lind, "The Collapse of North Korea: Military Missions and Requirements," *International Security*, Vol. 36, No. 2, Fall 2011.

¹⁴⁴ United Nations Office for Disarmament Affairs, "Treaty on the Non-Proliferation of Nuclear Weapons (NPT)," webpage, undated.

weapons storage sites and sold to nations aspiring to become nuclear powers. Or, worse, weapons could be sold to terror groups intending to sneak them into the population, political, and economic centers of their enemies, especially those of the United States.¹⁴⁵

North Korea is estimated to have 100 to 200 sites engaged in its WMD enterprise.¹⁴⁶ These include the research and design, production, test, and storage of chemical, biological, and nuclear weapons and the short-, intermediate-, and long-range systems to employ them (see Table 4.3 for one estimate).

Table 4.3. North Korean WMD-Related Fixed Sites

Site Category	Total Sites	Highest Priority Sites	Other Sites
Nuclear	39	9	30
Missile	49	9	40
Chemical	38	15	23
Biological	15	10	5
Total	141	43	98

SOURCE: Bonds et al., 2014, Table 4.1, p. 51.

Entrepreneurial officials of the collapsed regime might move and hide whole nuclear weapons, fissile materials, and other key components for later sale or to extort money from those nations most worried about WMD-armed terrorists. If such proliferators believed it to be easier to sell and physically transfer weapons and fissile materials once dedicated interdiction operations had been reduced or had ceased, they might attempt to wait out the coalition by keeping weapons and components in hiding until coalition members withdraw.

The greater the number of sites secured early in an operation, the lower the risk that nuclear weapons could be employed, or that weapons, components, materials, technologies, or know-how could be proliferated or transferred. On the other hand, the greater the number of sites that must be controlled, the greater the associated force requirements. Reliable intelligence will be critical to prioritize the sites to be seized and secured to reduce the risk of leakage or use.

In addition to the estimated 100 to 200 fixed sites that must be secured, weapons at temporary storage sites—for example, in artillery bunkers, with mobile missiles deployed to their

¹⁴⁵ The White House, *National Security Strategy of the United States of America*, Washington D.C., May 2010.

¹⁴⁶ South Korean officials have stated that there are 100 North Korean sites related to their nuclear program alone. See Bruce W. Bennett, *Preparing for the Possibility of a North Korean Collapse*, Santa Monica, Calif.: RAND Corporation, RR-331-SRF, 2013. Some of these sites are co-located as parts of a single, larger complex. See Bonds et al., 2014.

firing locations, or at pre-planned or ad-hoc dispersal sites—might well be discovered only after operations begin. U.S. and allied forces might encounter such sites at unexpected times or have to search for them if their existence was reported but their exact location was unknown. Discovery operations would need to continue while personnel from North Korea’s nuclear program were identified, interrogated, and debriefed. Although the UN and/or representatives of the International Atomic Energy Agency, the Organization for the Prohibition of Chemical Weapons, and other international organizations presumably would help, it could take years to uncover all of North Korea’s nuclear program and materials. The United States should be prepared for a prolonged effort.

Specially-designed task forces would be needed to find, secure, search, and remove weapons and materials from nuclear sites and operational locations. Each task force likely would include forces able to perform such tasks as armed reconnaissance, force protection, cordoning off sites to be searched, and security provision for searching potentially hundreds of buildings and bunkers at each site. To be effective, the task forces also should include technical experts to find, identify, and safely remove weapons, fissile materials, and other key weapons components as well as experts to identify and safely remove chemical or biological weapons that may be present or employed at each site.¹⁴⁷ If the United States must begin operations immediately, it would have to move these WMD-E task forces deep into North Korea in the presence of hostile populations and potentially intact military forces. Some of the North Korean nuclear sites could be close to wherever China establishes the southern limits of its line of control, requiring careful coordination of U.S. and Chinese operations.

Past RAND analysis has estimated that it would require 12 reinforced WMD-E task forces to search the 100 to 200 suspected sites in the space of a few months. U.S. forces would be dangerously exposed if they had to conduct these operations far out in front of South Korean efforts to gain control of the North Korean military. Therefore, these task forces would need to be supported by combat forces to secure the sites, protect U.S. supply and communications routes while operating deep in a potentially hostile environment, and counter attacks by remnants of the North Korean Army. (Or, if relations deteriorate, to deter aggression by Chinese forces that could be operating nearby.) Additional engineering, aviation, and logistics units would be needed to support and sustain each of these efforts. In all, U.S. ground forces would need to comprise between 188,000 and 250,000 troops and should include up to six armored brigades to protect the task forces, supporting units, and lines of communication from attack by more numerous, if perhaps disorganized, North Korean forces.¹⁴⁸

¹⁴⁷ See Bonds et al., 2014. For example, the 20th Support Command might provide its chemical, biological, radiological, nuclear, and explosive defense (CBRNE) Analytical and Remediation Activity (CARA); C2 for WMD-Coordination Elements; and the U.S. Army Reserve Consequence Management Unit, which is under its operational control, as well as decontamination units.

¹⁴⁸ Bonds et al., 2014.

A capable U.S. missile defense and air and naval presence also would be needed to guard against rogue missile launches; support Allied ground forces under attack; and intercept ships and aircraft attempting to smuggle weapons, materials, or fugitives out of North Korea.¹⁴⁹

These operations would require sophisticated technical and human intelligence to help find nuclear weapons that had been hidden in North Korea, as well as any that might be smuggled across the border to China or Russia en route to other states or violent extremists.

China's role looms especially large in such a mission to find and secure WMD. China would likely want to establish a buffer zone on its border with North Korea to keep North Korean refugees on their own side of the border and keep U.S. forces away from Chinese territory. How far south China would wish to establish this buffer zone is an open question. Estimates range from 50 km, as the minimum area needed to control refugees, to 100 km, to give Chinese forces some maneuver depth to ensure that U.S. forces are well away from their border. If we assume that China would maintain the same ratio of 20 soldiers and police per 1,000 civilians as in past successful stability operations, then China would need to deploy 170,000 troops to take control of territory including 8 million North Korean civilians. (If China did so, this might then allow a reduction of South Korean forces needed for similar tasks.)

If China wished to minimize the areas controlled by South Korean and U.S. forces, it could even come as far south as the "narrow neck" of North Korea, or a line connecting the major ports of Nampo and Wonsan, as shown in Figure 4.3. This would require taking yet more responsibility: The further south China comes, the more of North Korea and its problems China would own. If China took control of cities, it might have to run them until it could reestablish something resembling a functioning civil infrastructure.

If China took control of nuclear sites, it should secure them against the pilfering of nuclear materials or theft by organized criminals employing long-established smuggling networks. Better still would be for China to dismantle the critical nuclear facilities within its area of control and remove the most dangerous contents. But the extent to which China would dismantle these facilities—and has the technical skills to do so if it encountered dangerous levels of radioactivity—is unknown. In such a contingency, the United States should be prepared to offer China assistance to complete these tasks in Chinese-controlled areas.

Whether or not China chose to undertake cooperative efforts, the United States would have to deconflict operations with China even as it worked closely with South Korea on a more comprehensive joint plan. It would be better if the United States and other interested nations achieved a set of common objectives and established complementary campaigns. Best of all might be a truly combined and integrated China-Korea-U.S. campaign, but that might prove impossible given tensions in other areas, such as Taiwan and the South China Sea.

¹⁴⁹ During OIF, 70 aircraft sorties per day were allocated for this mission. Air and missile defense operations grew to include more than 7,200 soldiers manning more than 30 missile batteries and providing additional capabilities for chemical, biological, radiological and nuclear (CBRN) mitigation.

Figure 4.3. Potential Chinese Buffer Zones



Deterring Major Conventional Aggression and North Korea's Artillery Threat to South Korean Population Centers

The United States has committed to South Korea's defense against conventional arms and has maintained forces in South Korea for this purpose since 1950. President Trump reaffirmed this commitment, referring to it as "our ironclad commitment to defend the ROK, including through the provision of extended deterrence, using the full range of military capabilities."¹⁵⁰

Fortunately, the prospects of a North Korean ground invasion of the South have receded over the past 40 years. North Korea maintains a much larger Army than does the South, although the army is believed to be poorly trained and equipped (see Table 4.4). Although it is still possible that North Korea would launch a conventional military invasion of South Korea, it would be very

¹⁵⁰ The White House, Office of the Press Secretary, 2017a.

difficult for North Korea to sustain an offensive campaign into the South, given its aging mechanized forces.

North Korea's advancing forces would have to cross a heavily fortified border, be very vulnerable to attack by South Korean and U.S. artillery and air forces, and have to mount an effective logistics effort under fire to sustain combat operations. The advancing North Korean force would be weakening and vulnerable to counterattack by South Korean and U.S. ground forces.

Table 4.4. Comparison of North and South Korean Armed Forces and U.S. On-Peninsula Forces

	DPRK	RoK	U.S. (On-pen)	DPRK:RoK-US Force Ratio
Total Ground Troops	1M	495K	19K	2:1
Armored/Mechanized Brigades	30	23	1	1.3:1
Infantry Brigades	107	58	-	1.8:1
Tanks	3500	2434	87	1.4:1
Artillery	13600	5000	50	2.7:1
Attack Helicopters	-	64	48	-
Fighters	465	487	192	0.7:1

SOURCE: Data are from IISS, 2017.

NOTE: Forces listed as "U.S. On-pen" reflect only those troops and units forward-deployed onto the Korean Peninsula.

U.S. intelligence and defense assessments have concluded that North Korean leadership accepts that the forcible reunification of the Korean Peninsula is an unattainable objective.¹⁵¹ Pyongyang views its national objective of unification as necessarily achieved by long-term and peaceful means.¹⁵² And, North Korea could not count on Chinese support if it launched an unprovoked attack. For example, an editorial by the Chinese state-owned newspaper *Global*

¹⁵¹ Office of the Secretary of Defense, *Military and Security Developments Involving the Democratic People's Republic of Korea: Annual Report to Congress*, Washington, D.C.: U.S. Department of Defense, February 4, 2014, p. 6.

¹⁵² See, for example, Josh Smith, "Impossible Dream? Unifications Less of a Priority as Korean Leaders Prepare to Talk," Reuters, April 25, 2018; and Dake Kang, "North Korean General Says Country Seeking 'Stable Peace,'" AP News, October 25, 2018.

Times warned that “if North Korea launches missiles that threaten U.S. soil first and the U.S. retaliates, China will stay neutral.”¹⁵³ DoD has come to the same conclusion, explaining in a 2012 assessment of DPRK military policy that the DPRK “has largely abandoned unilaterally enforced reunification as a practical goal. North Korean goals and strategies reflect the reality of political isolation, significant economic deprivation, a deteriorating conventional military, and the increasing political and military power of nearby states.”¹⁵⁴

For these reasons, the United States and South Korea appear to have succeeded in deterring a North Korean invasion with conventional forces and can presumably maintain this deterrent with current ROK and U.S. forces in a ready posture. We did not identify any significant gaps that must be urgently closed, although South Korea’s planned cuts to its ground forces, which we discuss later in this chapter, might undermine the current deterrent posture.

However, North Korea remains capable of more-limited attacks short of an invasion. It could launch ballistic missiles, as discussed earlier in this chapter, although several factors might weigh against it: North Korea might prefer to reserve its finite missile arsenal to deter a U.S. or South Korean invasion; South Korea could partially counter the ballistic missile threat by expanding its missile defenses; South Korea and the United States could inflict devastating air strikes in retaliation; and China might not come to North Korea’s aid if it strikes first. North Korea could resume sending special operations forces operatives into South Korea, although these, too, are valuable strategic assets that might be reserved for use at a critical moment. Finally, North Korea could lob a few cheap and plentiful artillery shells onto South Korean soil.

It is unclear why North Korea would want to shell South Korea, but for that matter, it is not completely clear why it shelled Yeonpyeong Island in 2010. At the time, experts theorized that the current leader’s father, Kim Jong-il, hoped to coerce concessions from the international community, impress his own military, and improve the credibility of Kim Jong-un as his successor.¹⁵⁵ Since then, much has changed, with the election of South Korean President Moon and his initiatives with Kim Jong-un to seek a rapprochement between the North and the South.

Despite this warming of relations, North Korea might attack South Korea in response to a U.S. action; for example, a strike on North Korea’s ballistic missile or nuclear facilities. If the United States persisted, North Korea could increase the number of shells it would fire into the South and promise to continue until the United States ceased its campaign. The resulting South Korean outcry, along with the pressure exerted by China and perhaps others, might convince the

¹⁵³ The same semi-official source went on to say that “if the U.S. and South Korea carry out strikes and try to overthrow the North Korean regime and change the political pattern of the Korean Peninsula, China will prevent them from doing so.” Hence, this should be viewed as a warning to both sides to avoid starting a conflict. See Simon Denyer and Amanda Erickson, “Beijing Warns Pyongyang: You’re on Your Own If You Go After the United States,” *Washington Post*, August 11, 2017.

¹⁵⁴ Office of the Secretary of Defense, 2012, p. 5.

¹⁵⁵ Jack Kim, and Lee Jae-won, “North Korea Shells South in Fiercest Attack in Decades,” Reuters, November 23, 2010.

United States to cease its operations. Indeed, fear of North Korean reprisals against South Korea kept the United States from attacking the Yongbyon nuclear reactor in 1994.¹⁵⁶

If future provocations followed the Yeonpyeong model, North Korea might conduct a short surprise attack, which might be followed by an immediate South Korean counterattack. Unless or until they are rescinded, South Korean retaliation policies put into place by former South Korean President Park Geun-hye might make such an exchange escalate rapidly. President Park had issued orders for tactical units to respond to North Korean artillery fires with “countermeasures three to five times stronger than an enemy attack.”¹⁵⁷ That is, for every round that lands in South Korea, their Army has been ordered to fire up to five back.

This could lead to profound instability in a crisis and to rapid escalation if North Korea were to respond in kind. At some point in this escalation process, even a small DPRK artillery attack could hit a populated area of South Korea close to the border. Civilian casualties would be likely, but how many, where, and whom would vary with the vagaries of inaccurate, unguided fires. Unless its policy changes, South Korea’s response would likely be swift—perhaps striking at some known artillery sites in the Kaesong Heights or other North Korean forces that presented themselves as both vulnerable and valuable targets.

Ultimately, this is a fight that South Korea would be likely to lose. North Korea has more than 14,000 multiple rocket launchers and tube artillery pieces, about 10,000 of which are garrisoned within 100 km of South Korea. DoD has estimated that North Korean artillery could land 500,000 rounds per hour on South Korea for several hours.¹⁵⁸ In order to succeed, North Korea merely needs to land a shell somewhere on a South Korean town or city. Even if South Korea were willing to respond in kind by shelling North Korean civilian areas, no targets with the number of citizens or the economic value of Seoul and its outlying population centers are within range of South Korean artillery. For South Korea to succeed, it must be able to neutralize all or nearly all of the North Korean artillery pieces that hold Seoul and other South Korean towns and cities at risk. As we will discuss further, the North Korean artillery pieces are believed

¹⁵⁶ Barbara Demick, “Former Defense Secretary William Perry on Why We Didn’t Go to War with North Korea,” *Los Angeles Times*, April 14, 2017.

¹⁵⁷ Kim Eun-jung, “S. Korea Responds to North’s Artillery with New Engagement Rules,” *Yonhap News Agency*, April 1, 2014. According to the *Washington Post*,

South Korean officials cite Yeonpyeong as an instance in which their forces returned fire too late and too timidly—a mistake that they pledge will not be repeated. If faced with a similar attack, President Park Geun-hye has told her military, the South should strike back “without political consideration” and without waiting for top-level approval . . . South Korea’s new stance is not just rhetorical. After the Yeonpyeong shelling, Seoul revised its rules of engagement, allowing front-line commanders to “take aggressive action . . . and then report it up the chain of command,” (Chico Harlan, “Island Attack Toughened S. Korea’s Will to Strike Back Against North,” *Washington Post*, April 14, 2013).

¹⁵⁸ According to Office of the Secretary of Defense (2000),

[w]ithout moving any artillery pieces, the North could sustain up to 500,000 rounds an hour against Combined Forces Command defenses for several hours. The artillery force includes 500 long-range systems deployed over the past decade. The proximity of these long-range systems to the Demilitarized Zone threatens all of Seoul with devastating attacks.

to be in hardened underground bunkers, making them difficult targets for long-range fires from the ground or the air.

If such an artillery duel were to take place and begin to escalate, South Korea and the United States would have a limited set of options with which to respond. It is important, then, for South Korea to ensure that the few options it does have are credible, effective, and can begin soon after an attack. We will describe and assess some of the available choices below.

Possible South Korean and U.S. Responses

Threaten North Korea with Conventional Counter-Value Air and Missile Strikes

Seoul and its surrounding population centers are close to the border with North Korea and are thus easy targets for DPRK artillery attacks that could threaten millions of South Koreans. South Korea can hold no similarly valuable or precious North Korean targets at risk with ground-based weapons. However, South Korea could use its superior air and naval forces to destroy North Korean air and sea forces and other military targets in order to compel North Korea to stop its artillery attacks. If North Korea persisted, South Korea could begin to strike North Korean factories, mining operations, power plants, and other economic targets. South Korea could then escalate to North Korean government centers, and other symbols of the Kim Jong-un regime. However, such wider attacks on North Korean military and leadership targets could cause North Korea's leaders to panic, which would have unpredictable consequences. Among the most dangerous of these consequences would be a conviction that the United States had joined these strikes with the intent of removing the Kim regime, thereby increasing the prospects that North Korea would use nuclear weapons in response.

Ultimately, this South Korean strategy does not directly neutralize the North Korean attack. Instead, it seeks to compel North Korea to stop by causing unacceptable damage to the North Korean state. Its success depends on North Korea valuing its military and civilian infrastructure as much as South Korea values Seoul and the 21 million people living within 60 km of the DMZ; as well as on the South's ability to continue punishing air attacks for as long as North Korea can continue punishing artillery attacks. Objectively, North Korea can hold more lives and valuable infrastructure at risk than can South Korea. In our judgment, therefore, this strategy is unlikely to definitively end North Korea's ability to hold South Korea's population at risk of artillery strikes.

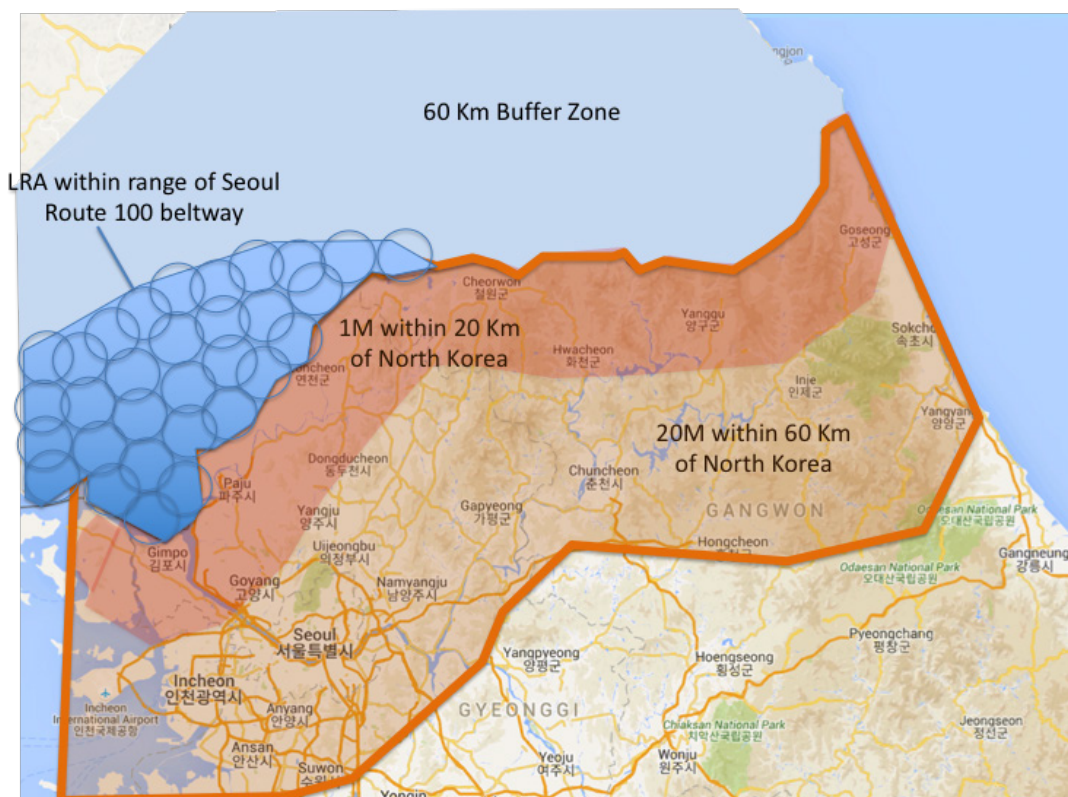
Employ Counterbattery Attacks with Long-Range Air and Ground Fires

The most direct response would be for South Korea and the United States to directly attack and neutralize the batteries firing on South Korea. Combined South Korean-U.S. forces could attempt to do this with long-range air and ground fires, striking artillery pieces as they left their caves and bunkers to execute a fires mission.

The area in which North Korean artillery operates is large, and this area would need to be kept under nearly constant surveillance. As shown in Figure 4.4, artillery within range of striking

Seoul's Route 100 beltway could operate from a triangular area that measures about 80 km in length across the border by 50 km at its deepest point, and more than 2,200 square kilometers in total area.

Figure 4.4. Kaesong Region and Areas of South Korea Vulnerable to Attack



SOURCE: Google maps, with overlay by authors.

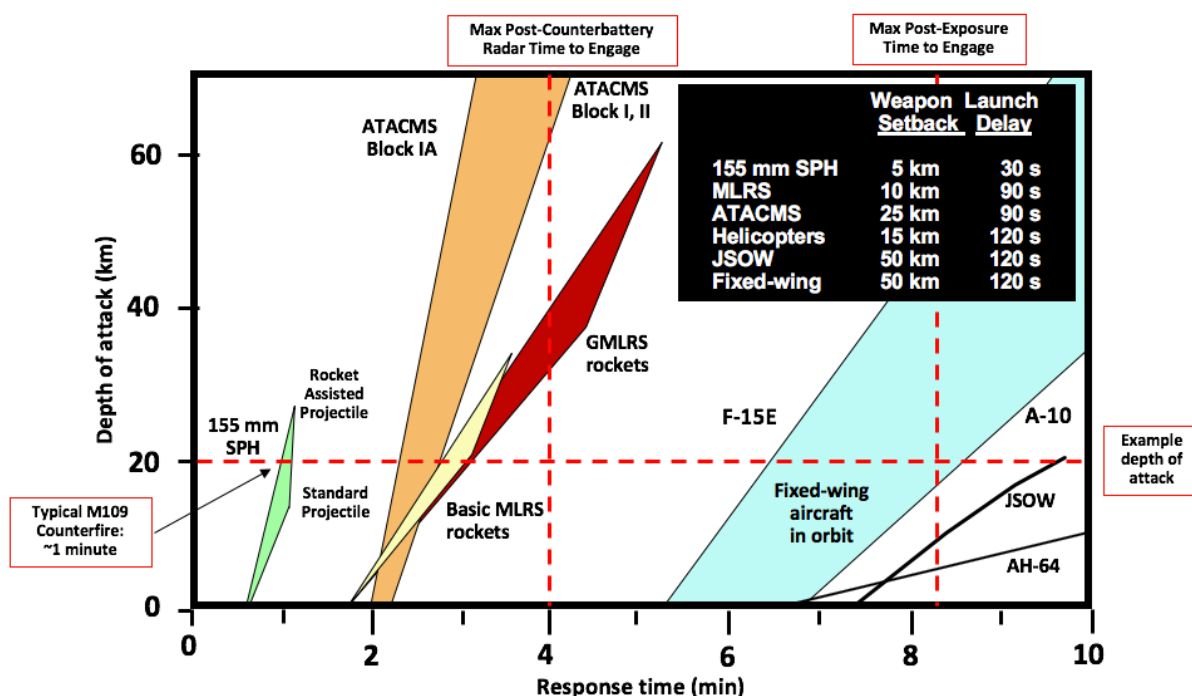
NOTE: LRA = long-range artillery. 1M and 20M indicate millions of people.

It would take a minimum of 30 Predator unmanned aerial vehicle (UAV) orbits of 10 km in diameter to cover this area continuously, and 30 such orbits could be sustained with a force of 90 to 150 aircraft, depending on mission-capable rates and combat attrition. The artillery would be most vulnerable as it moves out of its underground bunkers to attack. These aircraft would need to have advanced sensors that could spot and identify artillery pieces as soon as they moved into the open and be armed with hellfire missiles to attack them. A limitation of these UAVs would be their inability to cover all areas under their orbits continuously. Artillery pieces emerging behind them may not be detected until the next completion of their orbits, which could take ten or more minutes.

However, if the purpose of an artillery attack is to terrorize civilian populations, rather than striking precise military targets, North Korean artillery would not need to spend time finding targets. Commanders could therefore limit artillery exposure time to the minimum needed to egress from their bunkers, shoot, and return. We estimate that North Korean artillery could

conduct such a mission in ten minutes or less, making it extremely difficult for ROK and U.S. forces to detect and destroy them. This mission could be even more challenging than destroying Scuds in Iraq: North Korean artillery systems are smaller than the Scuds and they will be operating in mountainous Korean terrain. Given a ten-minute exposure time, with perhaps only six to seven minutes remaining once a North Korean artillery piece has fired and its shells can be traced back to their firing location, there is very little time for ROK or U.S. systems to successfully target and strike them, as shown in Figure 4.5.

Figure 4.5. North Korean Artillery Within Range of South Korean Population Centers



SOURCE: Adapted from John Matsumura, Randall Steeb, and John Gordon IV, *Assessment of Crusader: The Army's Next Self-Propelled Howitzer and Resupply Vehicle*, Santa Monica, Calif.: RAND Corporation, MR-930-A, 1998, p. 21.

NOTES: Does not include command and control delays. JSOW = Joint Standoff Weapon. GMLRS = Guided Multiple Launch Rocket System. MLRS = Multiple Launch Rocket System. SPH = Self-Propelled Howitzer.

Manned aircraft and rocket artillery also may be able to help. To attack artillery pieces operating 20 km north of the border, it takes 6.5 to 8.5 minutes for fixed-wing aircraft operating in an orbit to reach their targets. If we add on a minute for counterfire radars to detect artillery fires, and perhaps another minute for the aircraft to receive the order, little or no time remains for the aircraft to acquire the target, line up an attack, and strike. Moreover, the artillery pieces might be defended by man-portable air defenses, which could force aircraft to operate at higher altitude, and thus with less effectiveness. The North Koreans also should be expected to operate

with camouflage and decoy targets, both of which proved effective when employed by Serbia in its 1999 war with NATO.

Rocket artillery units have a faster timeline but need to be within range. The Guided Multiple Launch Rocket System (GMLRS) rockets could reach a target 20 km deep in three minutes, if it happens to be aimed more-or-less directly at its target. If the GMLRS needs to attack targets significantly to the right or left of its position, it will take time to change its launch azimuth and its range could become a limiting factor. The ATACMS rockets have a much longer range and are faster but are limited to one rocket on a HIMARS platform and two on an M270 platform. Depending on these factors, rocket systems may be able to reach their targets in two to five minutes. If we add a minute for detecting incoming fires and another minute for returning fire and rocket artillery, the ATACMS may catch some portion of attacking North Korean pieces. By the time a GMLRS or ATACMS munition lands, though, the North Korean artillery piece may already be moving back into its shelter. Given this target location uncertainty, rocket artillery should be armed with area-effects munitions.

North Korea could drag out an attack on South Korea by utilizing a small percentage of its available forces each day, as shown in Table 4.5. North Korea has approximately 900 long-range 170 mm artillery and 240 mm multiple-rocket launchers (MRLs) that can put downtown Seoul at risk and 300 mm MRLs that can hit targets 200 km deep into South Korea. In their normal military function, these systems would be assigned to each of the combined-arms corps deployed along the DMZ. However, if North Korea chose to concentrate them within range of Seoul, perhaps in the Kaesong area, the estimated 900 long-range artillery could put nearly 8 million South Koreans within range of the 170 mm guns; 20 million in range of the 240 mm rockets; and more than 30 million within range of the 300 mm rockets.

Table 4.5. Even 10 Percent of North Korean Artillery Could Land 1,000 Shells per Day on Seoul and 10,000 Shells per Day on Closer South Korean Populations

Target Set	DPRK System	Range	Total Inventory	1,000 in 10 Minutes Force	10,000 in 10 Minutes Force	Rounds Fired in 10-Minute Exposure	Population Threatened (M)
Downtown Seoul	300-mm MRL	200	36	3		48	30
	240-mm MRL	65	432	38		836	20
	170-mm self-propelled artillery	60	432	38		114	
			900	79		998	
Inchon, Gimpo, Chorwon, and Paju	152-mm self-propelled artillery	17	774		40	1,667	1
	130-mm self-propelled artillery	24	432		38	1,667	
	122-mm self-propelled artillery	24	774		38	1,667	
	152-mm towed artillery	17	480		167	1,667	
	122-mm towed artillery	15	1440		38	1,667	
	122-mm MRL	20	948		93	1,667	
			4,848		414	~10,000	

NOTE: Data in rows 4 and 11 are subtotals.

SOURCES: Data are from IHS Jane's, *Jane's World Air Forces*, 2016a; IHS Jane's, *Jane's World Navies*, 2016b; Ministry of National Defense, 2014; Robert L. Worden, ed., *North Korea: A Country Study*, Washington, D.C.: Library of Congress, 2008; James M. Minnich, *The North Korean People's Army: Origins and Current Tactics*, 1st ed., Annapolis, Md.: Naval Institute Press, 2005; B. B. Bell, *Statement of General B. B. Bell, Commander, United Nations Command; Commander, Republic of Korea–United States Combined Forces Command; and Commander, United States Forces Korea before the House Armed Services Committee*, U.S. Forces Korea, March 11, 2008; Field Manual 34-71, *Opposing Force Training Module: North Korean Military Forces*, Washington, D.C.: Headquarters, U.S. Department of the Army, 1982.

The remaining 4,848 North Korean systems are shorter-range 122 mm, 130 mm, and 152 mm tube artillery and MRLs that can hit nearly 1 million people living in Inchon, Gimpo, Chorwon, Paju, and other rapidly growing cities within 20 km of the DMZ.

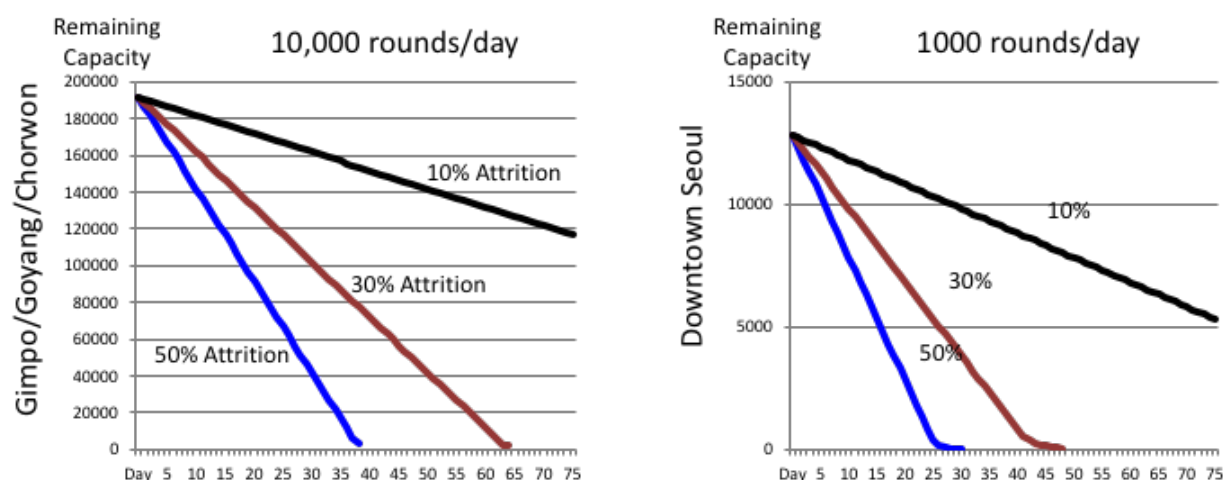
North Korea could choose to extend a bombardment by shooting only a percentage of its artillery on any given day. Its artillery could drop 10,000 shells per night somewhere in South Korea, including about 1,000 on downtown Seoul, while using less than 10 percent of its available artillery and exposing each system for just ten minutes. That is, 79 long-range artillery pieces could drop 1,000 shells on Seoul every night and 414 medium-range pieces could drop 10,000 shells on cities bordering the DMZ each night while risking exposure to counterbattery fire for only ten minutes. (The number of shells fired each night could be increased or decreased by varying the percentage of artillery firing and length of time they fired, which also would affect their time exposed to counterbattery fires).

Even if counterbattery fires were 50-percent effective, killing half of the attacking artillery pieces each night, a strategy of only exposing a fraction of its artillery systems each day would allow North Korea to strike South Korean population centers close to the DMZ for 35 days and

Seoul for 25 days (see Figure 4.6). If the effectiveness of counterbattery fires were reduced to 10 percent, then North Korea could prolong these attacks for more than 75 days. (Both estimates assume that, as the North Korean forces are drawn down, the remaining artillery pieces can be made to function. As the North Korean forces dwindle in numbers, individual system reliability will become important).

Worse, these North Korean attacks would appear to continue unaffected for many days in the face of a massive air and ground counterbattery campaign. From a psychological point of view, even the best counterbattery efforts of South Korea and the United States might appear to have no effect if it did not noticeably change the number of rounds hitting South Korea each day.

Figure 4.6. Effect of Counterbattery on North Korean Artillery Remaining Within Range of South Korean Population Centers



Attack Artillery Pieces in Hardened Bunkers

Although operations to attack North Korean systems outside their bunkers should be a feature of an allied counterbattery campaign, another approach would be to attack the hardened artillery sites themselves. A 2001 report indicated that North Korea had built 11,000 underground facilities to shield its military forces and other assets from allied airpower, including 4,000 such facilities close to the DMZ.¹⁵⁹ Much of North Korea's artillery, particularly those pieces deployed within range of South Korea, is believed to be located in hardened artillery sites (HARTS).¹⁶⁰

These HARTS can be sizable underground structures, with artillery tunnels extending for hundreds of meters behind steel blast doors. These facilities are built of reinforced concrete;

¹⁵⁹ Thomas A. Schwartz, "Statement of General Thomas A. Schwartz, Commander in Chief, United Nations Command/Combined Forces Command and Commander, United States Forces Korea—House Appropriations Defense Subcommittee Hearing on Fiscal Year 2002 Posture Statement," March 8, 2001.

¹⁶⁰ Joseph S. Bermudez, Jr., "North Korean Underground Facilities: Implications for the IDF," Jane's Information Group Latrun III Annual Conference, September 1–3, 2009; Mazarr et al., 2018, p. 11.

sometimes using “cut and cover” construction, and other times tunneled deep inside a mountain. Some of these HARTS might provide each artillery tunnel with more than one door that can be used to leave the tunnel and reach firing positions. Several firing positions are often grouped together around an interconnected series of tunnels, defensive positions, ammunition bunkers, and personnel quarters. Together, these features would make it difficult to target the critical inner components of an underground facility and ensure that, even if successfully penetrated, the actual artillery systems are destroyed.

For our analysis, we assume that each of the more than 5,700 rocket and artillery pieces within range of South Korean population centers will be located in a bunker hardened in some fashion. Each piece is likely to have at least one door that must be attacked to put that piece out of action. This becomes a high-volume job for long-range air and ground fires.

The USAF has a variety of weapons it can use to attack underground facilities, as shown in Table 4.6. The GBU-28 “bunker buster” was developed for use in ODS. It can penetrate 6 m of reinforced concrete or 20 m of soil. The newer and more capable Massive Ordnance Penetrator (MOP), or GBU-57, can penetrate up to 20 m of reinforced concrete or 60 m of soil. Although both are very capable weapons, the USAF is reported to have procured only 125 of the GBU-28 and 30 of the GBU-57. These and any additional weapons that may have been acquired are likely to be reserved for more-important strategic targets, including those tied to national military leadership, C2, and nuclear weapon arsenals and long-range missile garrisons.

Table 4.6. U.S. Penetrating Weapons Inventory

GBU-57	GBU-28	BLU-109	Mk 84	JDAM	GBU-10
30	125			137535	11,000
20 m hard	6 m hard	2 m hard	1m		
60 m soft	20 m soft				

SOURCES: Data are from DoD, *Joint Direct Attack Munition (JDAM)*, Washington, D.C., Selected Acquisition Report RCS: DD-A&T(Q&A)823-503, March 21, 2016b; U.S. Department of the Air Force, “Joint Direct Attack Munition GBU-31/32/38,” Washington, D.C., fact sheet, June 18, 2003; and U.S. Department of the Air Force, “Joint Direct Attack Munition Budget Line Justification PB 2016,” in *Air Force Department of Defense Fiscal Year (FY) 2016 President’s Budget Submission: Justification Book Volume 1 of 1: Procurement of Ammunition*, Air Force, Washington, D.C., February 2015; John Reed, “Air Force Now Has the MOP,” *Defense Tech*, November 15, 2011; and U.S. General Accounting Office, *U.S. Combat Air Power: Reassessing Plans to Modernize Interdiction Capabilities Could Save Billions*, Washington, D.C., GAO/NSIAD-96-72, May 13, 1996.

NOTE: JDAM = Joint Direct Attack Munition.

This leaves such weapons as the Mk-84 2,000 lb bomb and the BLU-109 hardened penetrator munition for closing artillery tunnels. A standard Mk-84 can penetrate around 1 m of reinforced concrete, while the BLU-109 can penetrate around 2 m of concrete. Either weapon can be mated with the GBU-10 to make a precision weapon, or a Joint Direct Attack Munition (JDAM) tailkit

to provide near-precision weapons capabilities. A total of 11,000 GBU-10 and nearly 138,000 JDAM packages were in the combined USAF and USN inventories according to the most recently available information.

The most visible and easily attacked features of the North Korean underground facilities might well be their tunnel entrances. We therefore assessed the effort required to dig out tunnels that have been attacked with a 2,000 lb weapon. Because JDAMs represent 90 percent of the available guidance kits, we will base the following analysis on the 5 m circular error probability (CEP) of these weapons. A 5 m CEP means that half of the JDAM weapons sent to a given target will hit within 5 m of their intended aim point, so two weapons would need to be dropped onto each target to ensure that one bomb falls within 5 m of the aim point. We further assume that one 2,000-lb bomb dropping within 5 m of an entrance will cause that entrance to be closed and have the rubble effects we estimate below.

We considered three different cases to estimate the debris that workers must remove from a doorway or tunnel collapsed by an impact crater approximately 15 m across (see Table 4.7). In the first scenario, workers would need to remove large chunks of concrete, but very few additional rocks and little soil have collapsed into the bunker. If heavy machinery is available, this debris could be cleared in an hour or less. Without heavy machinery, we estimate that a crew of 20 miners on the outside working inward, along with a second crew of 20 artillerymen on the inside working out, could clear the area in four hours with hand tools. If the space was big enough for five such crews to work on the outside simultaneously—if, for example, the tunnel opening led out onto a large flat surface—then 100 miners and 20 artillerymen could clear the area in just over an hour.¹⁶¹

It becomes much more challenging if the weapon detonation fills the resulting crater with tons of loose soil and rocks along with concrete structure rubble, especially if the resulting pit is beyond the reach of an excavator working by itself. In this scenario, it would take 1.5 to 14 hours to clear the rubble using heavy equipment, two days to clear it with two crews of 20 miners and artillerymen working in shifts, or 14 hours if six such crews could work simultaneously.

More challenging still would be weapons detonations that cause the hills or mountains above artillery tunnels to collapse over them. In this case, the hill- or mountainside would need to be stabilized before the crater could be excavated. It would take up to 2.5 days to do this with heavy equipment, or 2.5 to 7.5 days to do by hand, depending on whether six crews of 20 miners each or only two crews could work simultaneously.

¹⁶¹ Major Michael Do, Ph.D., provided the estimates for debris removal.

Table 4.7. Estimated North Korean Bomb Damage—Clearing Times Per Tunnel

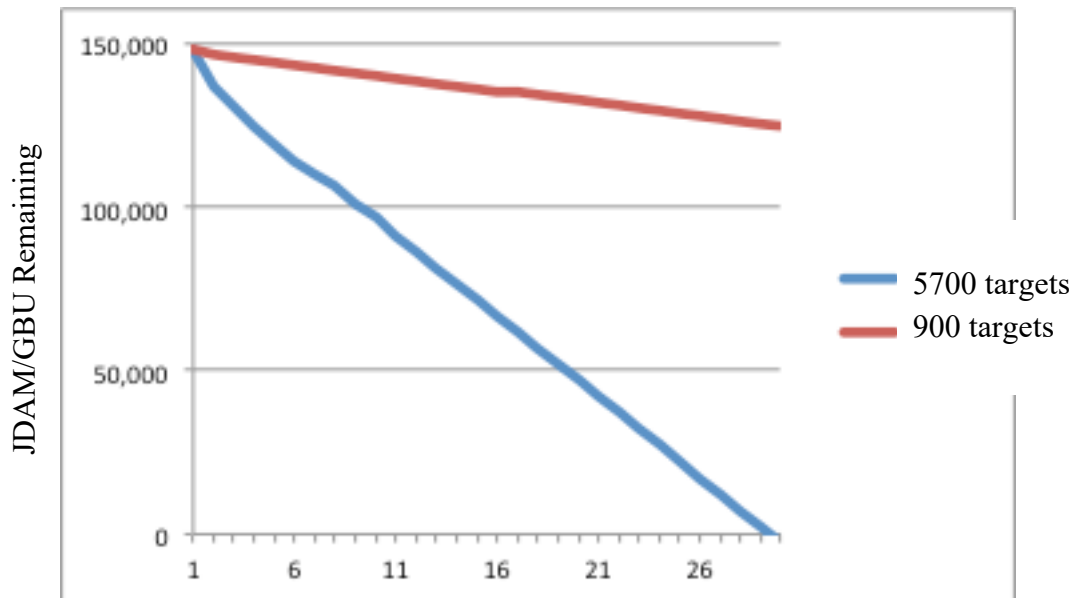
Removal Method	Removal of debris Created by Munition		Landslide and debris removal
	Concrete	Concrete and Soil	Concrete and Soil
Series 307 Hydraulic Excavator	1 hour	14 hours	2.5 days
D7 Bulldozer	<1 hour	1.5 hours	10 hours
By hand (1 team inside, 1 outside 20 pax each)	4 hours	2 days	7.5 days
By hand (1 team inside, 5 outside 20 pax each)	1.25 hours	14 hours	2.5 days

SOURCE: Major Michael Do, Ph.D., provided the estimates for debris removal.

The available stocks of U.S. and ROK air-delivered ordnance could be expended rapidly depending on the intensity of aerial bombardment, as shown in Figure 4.7. If the U.S. and ROK forces choose to attack all 5,700 artillery tunnels, requiring 11,400 weapons to be expended, the supply of JDAM and GBU-10 will run out in just over 30 days (see blue line). However, in half of the cases described in Table 4.7, the tunnels could be cleared within 24 hours of an airstrike. Considering that 5,700 such tunnels are assumed in this analysis, clearing 2,300 tunnels per day would easily provide the 79 tunnels needed to continue firing 1,000 shells per day on Seoul. Therefore, a tunnel-closing strategy, by itself, would not be effective.

If just the long-range tunnels are struck, a campaign to close the artillery tunnels protecting the 900 long-range systems would utilize 1,800 weapons on the first day before settling to about 770 weapons per day to restrike tunnels that have been cleared. A sufficient worldwide inventory of JDAM exists to sustain this rate of expenditure (see red line in Figure 4.7), but the United States and ROK would need to purchase enough munitions to ensure their availability for use in Korea.

Figure 4.7. Days U.S. JDAM/GBU-11 Inventory Would Last



Clearing the Kaesong Heights with a Combined Air-Ground Campaign

If long-range air and ground fires could not by themselves force North Korea to halt a bombardment, South Korea might feel compelled to take and clear North Korean territory within range of Seoul and other populated areas. As described earlier in Figure 4.4, that area would be large and, depending on how it was defined, could include just that portion of the Kaesong Heights within range of Seoul proper or any portion of North Korea within artillery range of South Korea.

Clearing and holding this area would remove the threat to Seoul of attack by artillery with a range of 60 km or less. However, South Korean citizens in the northern suburbs of Seoul, within 20 km of the DMZ, or in cities and towns to the east would still be within striking distance. To clear all threats from South Korea would require clearing a buffer zone that is 200 km wide and 60 km deep into North Korea, or approximately 12,000 square kilometers.

The terrain over which this campaign would be fought is remarkably difficult and was the scene of some of the most bitter combat during the Korean War. Today, this terrain is believed to host the bulk of the North Korean Army, including tanks, infantry, and anti-aircraft weapons that would defend the massed artillery already mentioned. Although their equipment is obsolete by modern standards and is likely in disrepair, these North Korean forces would have the advantage of defending from prepared and hardened positions.

To gain some idea of the magnitude of this challenge, we compare it with the battle for Okinawa in World War II. Approximately 77,000 Japanese regular army troops in field fortifications with 800 artillery pieces were able to defend an area of approximately 150 square kilometers for 82 days against a force of more than 200,000 assault troops backed by thousands of artillery pieces and tanks; 1,800 aircraft; and naval gunfire from dozens of surface ships,

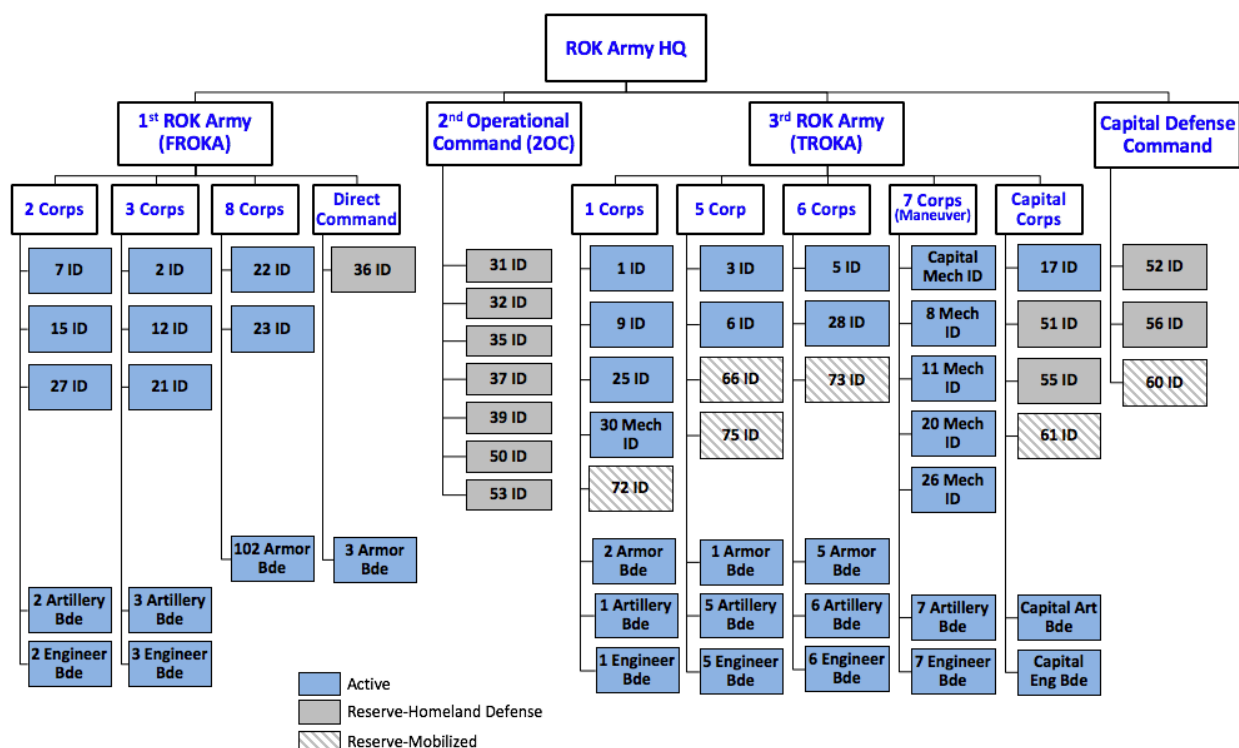
including battleships. U.S. casualties were very high: more than 65,000 in total, including more than 7,000 troops killed in action.

A ROK-U.S. ground campaign would face the North Korean II and IV Corps in the vicinity of the Kaesong Heights. In addition, the 815th Mechanized Corps, 806th Mechanized Corps, 820th Tank Corps, and 620th Artillery Corps should be expected to participate in the defense. We estimate that these units comprise 92,000 infantrymen as well as supporting troops and forces, including 1,200 tanks and the 5,700 artillery pieces described earlier, along with many more mortars and other direct-fire weapons. These forces could be further reinforced by elements of the eight additional regular corps and paramilitary and reserve forces North Korea is believed to have. The combination of a large armored and infantry force, deployed in fortified bunkers in mountainous terrain with few and narrow roads and covered by massed artillery placed at advantageous positions would make clearing this area a very difficult campaign.

Most militaries seek to achieve a 3-to-1 ratio at minimum while attacking prepared or fortified defenses.¹⁶² This would imply that South Korea would need to field a force of more than 270,000 infantrymen well supported with tanks and artillery. The South Korean Army has the First ROK Army (FROKA) and the Third Republic of Korea Army (TROKA), constituting 16 regular Army infantry divisions, six regular mechanized divisions, and five separate armor and seven artillery brigades (see the active units shown in blue in Figure 4.8). If all of these forces could be committed to a Kaesong campaign, we estimate that these regular ROK Army units would comprise more than 205,000 infantrymen, 900 tanks, 1,300 artillery pieces, and 130 long-range rocket artillery pieces, as well as 64 attack helicopters.

¹⁶² U.S. Marine Corps, *Marine Corps Planner's Manual*, Washington, D.C., MCO P3000.18, May 19, 2003, p. F-38.

Figure 4.8. ROK Forces



SOURCES: Ministry of National Defense, 2006; 2014; and 2016.

NOTE: Shows division and brigades under Corps and Commands only. Lower echelon-direct-command units exist.

If South Korea could commit all of its active Army units to a campaign to clear the Kaesong region of artillery, the resulting forces would be as shown in Table 4.8. Without reinforcement, these regular South Korean forces cannot achieve a 3-to-1 advantage over the defending North Korean forces. Furthermore, committing all of the regular Army units to an operation against the North Korean II and IV Corps regions would require the eastern half of the peninsula (facing the North Korean I and V Corps) to be secured by a combination of mobilized reserve divisions and ROK marines. Upon mobilization, South Korea lists 18 reserve divisions as available, adding perhaps another 200,000 reserve infantry men. The ROK marines comprise an estimated 29,000 troops operating in two divisions and one independent brigade.

If the United States were willing to commit a force similar in size to that deployed for major combat operations in OIF, it could add the capabilities shown in the third column of Table 4.8. A force of six armored and 13 infantry brigade combat teams (IBCTs) and six marine infantry battalions could provide 31,000 infantry supported by more than 60,000 additional troops, more than 500 tanks, and more than 500 artillery pieces. (This is roughly comparable to the 11 armored, five infantry brigades, and four marine regiments in OIF.) Committing one-third of the Army's rocket artillery and attack helicopters would add 192 rocket artillery systems and 192 attack helicopters. The combined ROK-U.S. force could achieve a 2.6-to-1 advantage in infantry.

Although the advantage in tank numbers would be small (1.3 to 1 in favor of the ROK/U.S. force), the qualitative superiority of the ROK-U.S. systems should be decisive. Similarly, the proposed USAF contingent of 576 fighters and 48 bombers, along with 487 ROK fighter aircraft, is vastly superior to North Korea's 465 older-model fighters and 80 bombers.

ROK and U.S. forces would still be at a substantial disadvantage in artillery (on average, 2.7 to 1 in favor of North Korea). Although the reliability of North Korean artillery and munitions is highly questionable, they would be firing from prepared and hardened positions against narrow approaches, thus increasing their effectiveness against advancing ROK-U.S. forces. In addition, they are likely to be equipped with chemical munitions, which could seriously hamper assaulting forces if employed.

Table 4.8. Potential DPRK, ROK, and U.S. Ground Forces in a Kaesong Campaign

Kaesong Heights Area	DPRK II, IV 820, 815, 620m Corps +LRA	RoK FROKA & TROKA	US: 19 BCT+6 MR+ Fires, Attack R/W, 24 USAF Sqdn	DPRK:RoK-US Force Ratio
Total Infantry	92K	205.5K	31K	1:2.6
Tanks	1200	928	586	1:1.3
Short/Medium-range artillery	4800	1300	542	2.6:1
Long-range artillery	900	130	192	2.8:1
Attack Helicopters	-	64	192	-
Fighters	465	487	576	1:2.3
Bombers	80	-	48	

SOURCES: IISS, 2017; Worden, 2008; and Minnich, 2005.

NOTE: R/W = rotary wing.

Planning for Massive Noncombatant Evacuation Operations

A sudden attack by North Korea against civilian population centers would thrust the people and leadership of South Korea into a dangerous dilemma. A small attack that ended quickly would not necessarily cause an exodus from towns and cities, but it is difficult to conceive of Seoul's citizens going about their normal lives if hundreds or thousands of shells landed in their city, especially if the bombardment could begin again the following night. The next night's

attack could be far worse and could be accompanied by attacks with ballistic missiles, aircraft, or infiltration by North Korean ground forces. Even if halted, the bombardment could be swiftly resumed without warning unless or until the North Korean artillery was permanently neutralized.

If such attacks generated a perceived requirement for noncombatant evacuation, evacuating citizens out of harm's way would be a massive undertaking. Once evacuated, citizens would face significant hardships until they reached encampments able to provide food, water, shelter, and medical care.

The combined ranges of North Korean tube and rocket artillery put practically the whole Seoul Metropolitan Area (SMA) and its 25 million inhabitants at some degree of risk. The potential humanitarian catastrophe of hundreds of thousands to millions of people living in temporary camps, with imperfect access to food, water, and sanitary facilities—especially if the evacuation persisted through the Korean winter—would be staggering.

In the event of an attack, the United States would be expected to make its best efforts to evacuate all American civilians in harm's way, including businesspersons, students, visitors, and others on long-term visas. More than 200,000 U.S. citizens are believed to be living in South Korea.¹⁶³ In this discussion, we will focus on the approximately 55,000 of these U.S. citizens who are civilian employees of the U.S. government, contractors, retirees, or their dependents, and the civilian dependents of U.S. service members living in South Korea.¹⁶⁴ The U.S. government has the greatest obligation to evacuate the civilian employees and the families of its military members and civilian employees that it has sent to Korea on official business.

Conducting a comprehensive NEO under the aforementioned conditions would be enormously difficult. The operation's success would depend on detailed planning to identify, assign, and control exit routes from populated areas and air- and seaports. Ensuring that adequate ground, air, and sea transportation exists for each leg of the evacuation would be crucial, and each segment of the evacuation must be protected from North Korean attack.

One approach to this herculean task would be for a marine expeditionary unit (MEU) to deploy for each of the major sites at which U.S. civilians reside—a list that is planned to be reduced to six sites in 2020, as shown in Figure 4.9.¹⁶⁵ Civilians would need to be transported from these sites to evacuation ports. Given that the evacuations might take place under fire, and that the roads and railways south from the DMZ and Seoul may already be choked with civilians streaming south and soldiers moving north, it may be necessary to move the estimated 55,000 evacuees from their assembly points to designated evacuation ports by helicopter.¹⁶⁶ We estimate

¹⁶³ Gamel, 2018.

¹⁶⁴ U.S. Government Accountability Office, *Defense Management: Comprehensive Cost Information and Analysis of Alternatives Needed to Assess Military Posture in Asia*, Washington, D.C., GAO-11-316, May 25, 2011.

¹⁶⁵ Two of these sites, Osan Air Base and Camp Humphreys, are described together as the "Pyeongtaek Hub." However, they are 14 km apart by air and are separated by a river and densely populated areas. In addition, they are the two largest concentrations of DoD civilians and family members. Therefore, we count each as a separate site for the purpose of our analysis. The estimate of 55,000 civilians does not include the approximately 29,000 uniformed personnel currently assigned, which together compose the DoD population of more than 84,000 total personnel."

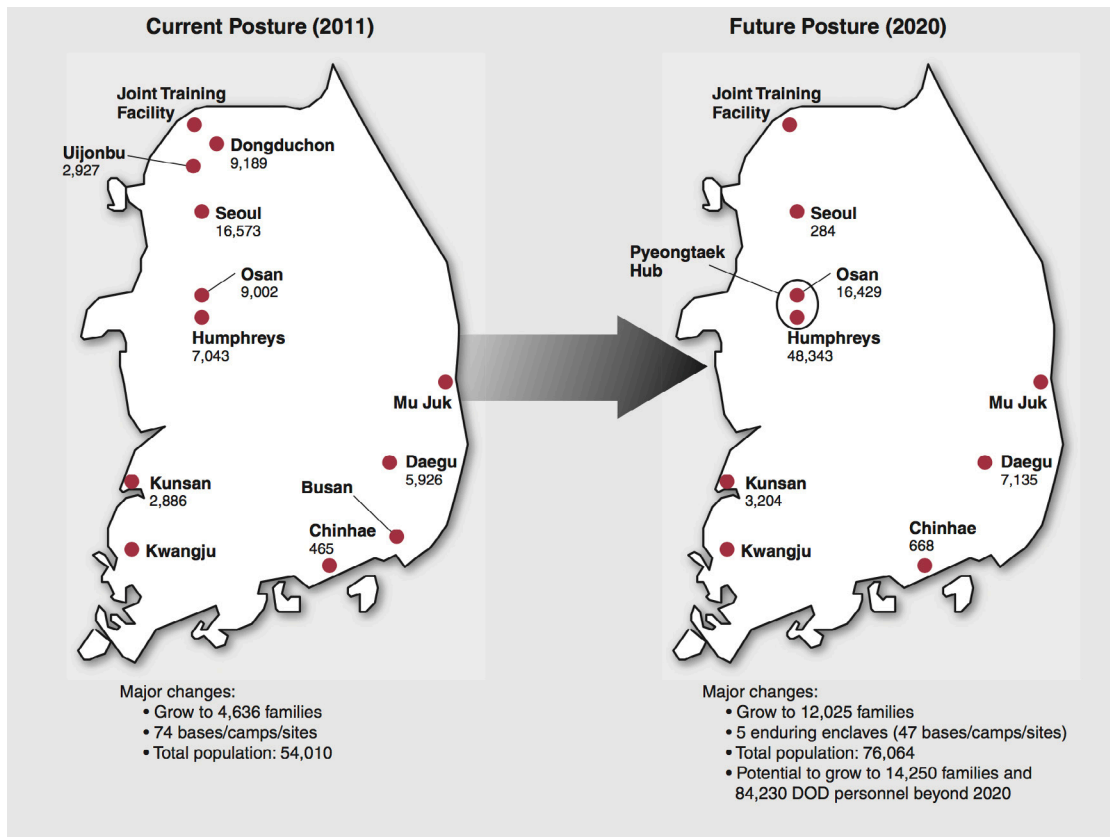
¹⁶⁶ As noted in Figure 4.9, the total number of evacuees could grow to 84,000 in the future.

that a force of 600 helicopters, including a mix of 400 medium-sized UH-60s and 200 larger CH-47s and CH-53s, would be able to move these evacuees in four lifts. Such an effort could call on between one-fifth and one-half of all transport helicopters in the U.S. inventory in the various categories.¹⁶⁷ Of course, half of that number would be needed if the United States used eight lifts instead.

At the designated evacuation sites, which could include multiple seaports, the United States would need sufficient sealift available to remove these civilians from harm's way. They might utilize either USN vessels or leased commercial ships that have already landed troops. Commercial ocean liners might be especially good for this purpose if leased in advance. If civilian or USN amphibious vessels were able, on average, to accommodate 2,000 civilians each (including, on an emergency basis, in hangar and vehicle ramp areas), it would take a fleet of 30 to evacuate these citizens in one lift or 15 ships in two lifts. Although it would be convenient to transport these evacuees to Japan, it may be necessary to take them to Guam or Hawaii if Japan is threatened or already under attack.

¹⁶⁷ CBO, *Modernizing the Army's Rotary-Wing Aviation Fleet*, Washington, D.C., No. 2898, November 2007; DoD, *Annual Aviation Inventory and Funding Plan, Fiscal Years (FY) 2017–2046*, Washington, D.C., March 2016a.

Figure 4.9. Kaesong Region and Areas of South Korea Vulnerable to Attack



Source: United States Forces Korea; Map Resources (map).

SOURCE: U.S. Government Accountability Office, 2011, p. 11.

Other U.S. citizens in Korea not on official business also will be attempting to flee. And, as already mentioned, nearly half of the South Korean population may be running away from North Korean attacks. They too will flood the roads, rails, air- and seaports. So will other foreign civilians seeking safety, including an estimated one million citizens of the People's Republic of China (PRC) and another 400,000 citizens from other nations.

The United States might work with South Korea, China, Japan, and other nations to help evacuate the civilians fleeing North Korean attacks. For its part, the United States might arrange for civilian ship capacity to evacuate the remainder of the more than 200,000 U.S. citizens. Of course, the United States could expand its participation as part of an international effort to evacuate all civilians in harm's way. South Korea, for its part, should improve the capacity of its air- and seaports and the road and rail infrastructure needed to speed the movement of U.S. forces to their warfighting areas and civilians out of harm's way.

Summary of Required Forces and Capabilities

Countering North Korea's Nuclear and Ballistic Missile Programs

To counter North Korea's nuclear arsenal, the best approach among unsatisfying options centers on classic nuclear deterrence based on the threat of massive retaliation. If North Korea employs nuclear weapons against the territory or forces of the United States, South Korea, Japan, or other allies for which the United States has extended its nuclear umbrella, the U.S. nuclear force must be ready to conduct a massive counterforce strike against suspected North Korean nuclear arsenals, missile garrisons, and other sites associated with nuclear warfighting.¹⁶⁸ It will require modern nuclear forces, together with capable reconnaissance, surveillance, intelligence, and C2 systems to enable a credible counterforce deterrent.

South Korea, Japan, and the United States also should put in place the forces needed to deny North Korea the ability to attack with ballistic missiles armed with conventional or chemical weapons. This could include conventional counterforce operations to detect, identify, and target mobile missile launchers but must include defenses to intercept missiles prior to reaching their targets. Japan and especially South Korea need to do much more to protect their populations from attack by large and growing numbers of North Korean missiles. The scope and scale might be similar to OIF, which included 44 U.S. and allied Patriot batteries employed to defend fixed sites in Kuwait (ten batteries), Saudi Arabia (three batteries) Bahrain (two), Qatar (one), Jordan (five), Israel (three), Turkey (five), and maneuver forces (15 batteries). Anti-missile capabilities also might be increased by reinforcing the single THAAD battery currently in South Korea and by deploying more Aegis surface ships with anti-missile capabilities. The United States should prepare to assign the forces as shown in the left-hand column of Table 4.9.

Securing Loose Nukes

In the event of a North Korean collapse, U.S. air and ground forces will be needed to find, seize, and secure suspected nuclear sites, weapons, materials, and personnel. This is likely to be a very large operation involving 188,000 to 250,000 ground troops, as discussed earlier. If U.S. forces must begin operations far ahead of advancing South Korean forces, then they must be reinforced with armor and more maneuver forces. Wide-area ISR aircraft will be needed to detect movements of ground vehicles in areas where nuclear weapons or ballistic missiles might be hidden. Focused-area ISR aircraft will be needed to track vehicles moving into or out of these areas until they can be intercepted by air or ground forces. Air and sea forces also will be needed to prevent any planes or ships from smuggling weapons or related materials out of North Korea.

¹⁶⁸ Although a North Korean demonstration shot into space or over an ocean would probably not draw a U.S. nuclear response, any use of nuclear weapons against U.S. or allied territory or forces most likely would.

Table 4.9. U.S. Force Requirements to Meet Four DPRK Threats

	Missile Defense	Loose Nukes	Counter-Battery	NEO
Ground forces	100-240 P2 GEM/PAC3 10 – 24 THAAD			
		4 ABCT, 13 IBCT 188k-250K troops	6 ABCT, 13 IBCT, 2 MR 192 HIMARS/M270 192 AH64	6 MEU for 55K DoD dependents and civilians
Air forces	576 Ftrs 48 Bombers	576 Ftrs 48 Bombers	576 Ftrs 48 Bombers	600 tpt helicopter
	5 wide- 30 focused- area ISR orbits	5 wide- 30 focused- area ISR orbits	5 wide- 30 focused- area ISR orbits	
Sea forces	2 CSG 20 - 40 Aegis	2 CSG 20 - 40 Aegis		15 amphb; 150 – 300 shiploads

SOURCE: IISS, 2017.

Employing Artillery Barrage Counterbattery

As discussed, both air and ground forces will be required to halt the barrage of South Korean cities and population centers. Artillery and air-delivered ordnance will be crucial to reducing the firing rate of North Korean artillery forces within range of Seoul and other towns and cities, but may not be able to completely end the barrage. A concerted attack on North Korea's military and war-supporting infrastructure may be enough to coerce the DPRK regime to halt an artillery barrage. If not, then a combined air and ground offensive to completely stop this bombardment might be required. South Korea must provide the bulk of forces for such an offensive operation, but it would still require that the United States provide a ground force about equal in size to OIF: We estimate that 21 brigade equivalents of U.S. ground forces, along with rocket artillery attack aviation and other supporting forces would be needed. Air support also would be needed for the ground operation, as well as focused-area ISR orbits to target North Korean ground forces and wide-area ISR orbits to spot North Korean forces attempting to move south to reinforce the Kaesong area.

Performing Noncombatant Evacuation Operations

In the case of a North Korean attack on Seoul, South Korea, the United States, and China must be prepared for a massive NEO. This would include 55,000 U.S. civilian workers and military and civilian dependents. Civilians would have to move up to 200 km south of the DMZ to be safe from the longest-range rocket artillery, which has sufficient range to put up to 30 million South Koreans at risk. The United States should be prepared to deploy up to six MEUs—one for each major U.S. site in South Korea—to secure and organize civilians and move them to evacuation ports. Movement to those ports may only be possible on helicopters, and it might take a mixed fleet of 600 medium and large helicopters to move these civilians in four or more lifts. Fifteen major amphibious ships may be required to evacuate 55,000 civilians. One hundred and

fifty or more commercial shiploads may be needed to evacuate the remainder of the more than 200,000 U.S. civilians believed to be in South Korea at any one time.

Investments in Near-Term Capabilities, Development of Breakthrough Technologies, and Geopolitical and Conceptual Innovation

The United States and South Korea should make additional investments in posture, forces, equipment and munitions, and infrastructure to improve the defense of South Korea (see Figure 4.10). First, the forces should be improved, including airborne sensor platforms like the Global Hawk for wide-area surveillance and the Predator for focused-area coverage to target and kill North Korean artillery and to help find and monitor suspected nuclear sites and weapons. They and more human intelligence (HUMINT) will be needed to conduct the enduring efforts to find hidden weapons before they can be moved off the peninsula and sold. More long-range rocket artillery is needed to hit North Korean forces when they are out of their bunkers and most vulnerable, and more missile defenses are needed to protect cities, theater bases, and air- and seaports.

Rocket artillery forces will need area-effects munitions, and South Korea needs greater supplies of rockets and munitions than are currently being bought. Advanced sensors better able to identify vehicle targets in all weather also will be needed.

As described in Chapter 3, it took the United States almost 90 days to deploy 450 aircraft and 14 brigade equivalents of ground forces. The quickest way to speed these deployments would be to pre-position the heavy equipment and munitions for these air and ground units. The investment for extra equipment sets is not cheap, but an investment in additional counterbattery radar and pre-positioned rocket artillery forces with plentiful munitions should be considered by both South Korea and the United States.

South Korea also will need improvements to its infrastructure. This includes improvements to its ability to warn civilians of artillery and missile attacks and to evacuate its citizens from areas under attack. The United States should improve its air- and sealift capabilities to speed the flow of troops to theater and to evacuate civilians to safety. South Korea should improve the capacity of its air- and seaports and the road and rail infrastructure needed to speed the movement of U.S. forces to their warfighting areas. Finally, South Korea should improve the infrastructure to house incoming forces and civilians evacuated from combat areas.

Figure 4.10. ROK and U.S. Investments Needed

<u>Forces</u>	<u>Equipment/Munitions</u>
<ul style="list-style-type: none"> • ROK: Stop cuts to Army forces • Long-endurance wide area coverage airborne sensors to detect and track mobile missiles and loose nukes • Long-endurance, focused coverage airborne sensors to target long-range artillery • Reconnaissance, surveillance, humint to find hidden and stolen WMD • WMD-elimination task forces for site exploitation, weapons and materials removal • Long-range artillery and rocket brigades • Missile defenses to protect cities, theater bases, air- and seaports 	<ul style="list-style-type: none"> • Artillery and air-delivered anti-personnel and anti-material area effects weapons • Advanced airborne sensors • Increased war-fighting stocks of artillery rockets, precision, air-delivered munitions
<u>Posture</u>	<u>Infrastructure Capabilities</u>
<ul style="list-style-type: none"> • Pre-positioned munitions and heavy equipment for Counter-artillery, NEO, and Loose Nukes missions 	<ul style="list-style-type: none"> • Improved attack warning and civilian evacuation alert systems • Improved air- and sealift to speed US force arrival and civilian evacuation • Improved air- and seaports and road and rail infrastructure to speed US force arrival and civilian evacuation • Ready bases to accommodate incoming forces and shelter civilians

One worrisome trend is South Korea's reductions of its armed forces, especially its regular Army. Combined South Korean Army, Navy, Marine, and Air Force regular troops are continuing a planned decline from 677,000 in 2006 to 522,000 in 2022, with virtually all of these troops from the South Korean Army. South Korea cut its regular Army from 541,000 troops in 2006 to 490,000 troops in 2016. South Korea plans to reduce its regular Army further to 387,000 troops in 2022.¹⁶⁹ This is troubling, given that North Korea's ability to threaten South Korea is increasing. What makes these cuts even more puzzling is that, over this same period, South Korea appears to expect the United States to contribute a constant 690,000 troops while South Korea is reducing their own forces. In its Defense White Paper, South Korea noted that¹⁷⁰

The U.S. augmentation forces to be deployed to the Korean peninsula in the event of a war to support the defense of the ROK, consist of 690,000 ground, naval and air force troops, 160 vessels and 2,000 aircrafts [sic].

¹⁶⁹ See Ministry of National Defense, *2006 Defense White Paper*, Seoul: Republic of Korea, 2006; and Ministry of National Defense, *2016 Defense White Paper*, Seoul: Republic of Korea, 2016.

¹⁷⁰ Ministry of National Defense, 2016, p. 53.

To some degree, the decline in South Korea's armed forces may reflect adverse youth demographics. However, it is important to note that South Korea also has reduced the mandatory service period for the Army from 36 months in 1968 to a planned 21 months. And, while fewer male youth may be available for military service, South Korea is not utilizing the female population as aggressively as it might. Its goal for the participation of female officers and noncommissioned officers is 7 percent and 5 percent of the force, respectively, versus 18.3 percent female officers and 13.6 percent enlisted in the U.S. Army.¹⁷¹

It might be possible to make up these declining regular Army troop numbers by relying more heavily on the nearly 3 million reservists counted on the ROK Ministry of Defense rolls. However, these reservists are required to attend only three days of training per year for the first four years of their reserve duty and have no mandatory training days per year in their 7th and 8th years of obligatory reserve services. With so little time to maintain combat skills, it is doubtful that they can effectively substitute for a declining number of regular soldiers.

Finally, it is worth considering the role that China might be able and willing to play to address each of the four problems outlined in this chapter. China has an interest in avoiding a war on its border and should surely be a voice of restraint in any confrontation or conflict between North Korea and the United States and South Korea. If war on the Korean Peninsula did resume, China might help evacuate civilians from conflict zones and may perhaps be willing to host some of the people displaced by fighting. Perhaps most importantly, Chinese forces might be willing to help secure nuclear sites and weapons and materials left or hidden there.

¹⁷¹ Ministry of National Defense, 2014; and Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs, *Defense Manpower Requirements Report, Fiscal Year 2017*, Washington, D.C.: U.S. Department of Defense, April 2016.

5. Deterring an Aggressive China in the Western Pacific

The threats facing the United States and its allies and interests in the Asia-Pacific region are multifaceted, and a regional strategy must be equally multidimensional. Although Russia and North Korea pose urgent threats that require some near-term fixes in U.S. and allied defense capabilities, China is a long-term competitor that will require a more nuanced approach. The United States wishes to cooperate with China to resolve such problems as North Korea while it aims to thwart Chinese attempts to coerce its neighbors. Short-term U.S. military fixes will not be enough to help U.S. allies and friends resist Chinese aggression while continuing to pursue mutually beneficial economic ties with Asia's leading power. This chapter will address the requirements of a long-term strategy both broad and subtle enough to deal with an increasingly assertive China that may sometimes be an ally, other times an adversary, and at all times a force to be reckoned with.

China is the largest Asia-Pacific nation in land mass, population, and economic might, and the rapid growth in its importance and influence over the past 25 years has reshaped international relations. China has edged out Canada to become the top U.S. trading partner, accounting for 12 percent of all U.S. foreign trade in 2017.¹⁷² Meanwhile, trade among the Asian nations also has been increasing.

However, this growing economic interdependence has coincided with rising concerns about Chinese intentions in the region and its propensity for military adventurism. Territorial disputes have flared up in recent years in both the South China Sea, where multiple overlapping claims of sovereignty remain unresolved, and the East China Sea, where China and Japan have territorial and maritime sovereignty disputes. And Taiwan remains a source of contention between the United States and China.

The United States sees a national interest in prosperity and stability in the region. It works with partners bilaterally and multilaterally to address regional security problems that have become more complex and perhaps less amenable to U.S. influence.

Its strategy toward China mixes engagement with deterrence. The United States seeks to cooperate with China on issues where there is agreement, but to dissuade China from using force to settle disputes with its neighbors. Thus, U.S. strategy must establish regional security ties and capabilities that deter such aggression, help China's neighbors withstand aggression should it occur, and yet not contribute to bringing about a conflict that all seek to avoid.

China sometimes demonstrates a strain of insecurity that is surprising for a country of its size. Its perceptions of regional security tensions are shaped by a national narrative about China's historical victimization and foreign efforts to contain its recent rise. Without ceding the

¹⁷² International Trade Administration, "Top U.S. Trade Partners," Washington, D.C.: U.S. Department of Commerce, undated.

Chinese anything on the sovereignty of disputed territory, U.S. security policy in the region should recognize that Chinese leaders believe that their actions are necessary to protect China's territorial integrity, a core interest and key pillar of their legitimacy. A successful U.S. strategy also needs to account for the views of regional actors. Regional economic interdependence gives Asia-Pacific countries strong incentives to cooperate with both the United States and China.

China's neighbors have a diverse range of political systems, legal norms, and ethnic compositions that affect their foreign policies. Some—like Japan and South Korea—are democracies that embrace elections, rule of law, internet freedoms, and, at least to some extent, intellectual property rights. Others—like Vietnam—are communist, authoritarian states that seek to limit their citizens' access to information and tightly manage their economies. The Philippines is a democracy with an elected government that is increasingly authoritarian and pro-Chinese.

Our analysis of the possible defense requirements necessitated by Chinese ambitions does not presume that conflict is inevitable, that U.S. and Chinese interests are irreconcilable, or that China is destined to launch wars in the region. U.S. defense requirements should not be based solely on worst-case scenarios about countries with powerful ambitions. Although this analysis identifies significant gaps in U.S. abilities to fulfill traditional missions, the risk posed by those gaps is a function of China's intentions and other constraints on its activities, including its economic interests. The optimal solution to them might not be increased defense investments. As suggested by the framework for defense analysis used in this report, we have tried to identify areas where geopolitical or conceptual innovation can help close gaps between ends and means in U.S. national security strategy.

Convergence or Conflict? Mapping U.S., Chinese, and Association of Southeast Asian Nation Interests in the Asia-Pacific

In evaluating U.S. security challenges in the Asia-Pacific, it helps to understand the goals and interests of each actor in the region. In this section, we sketch out U.S. and Chinese interests in the region and the interests of other key states. Our analysis suggests that the interests of the major players in the region can be reconciled, at least in theory, and that it might be possible for China to fulfill its goals in ways that do not threaten core U.S. interests. Helping allies and partners to develop adequate military capabilities for deterrence in the region continues to be an important component of any U.S. strategy. But there are opportunities, with both geopolitical initiatives and revised operational military concepts, to set the context for the military competition in ways that are advantageous to the United States.

In fact, current trends point to two dominant U.S. advantages in Asia as the competition and rivalry with China deepens. One such advantage stems from the fact that China's aggressive behavior over the past decade has frightened some neighbors and put all others on notice. Many of these countries have approached the United States for help in shaping China's behavior and balancing Chinese power—in many cases because they share values and goals with the United States, and in some cases because the United States is a distant power that poses no immediate

security threat. Although the regional powers do not want to be forced to “choose sides,” they do wish to help convey deterrent messages to Beijing and may be willing to help enforce some especially critical rules of conduct.

The second U.S. competitive advantage is related to the first: In addition to enjoying multilateral support in the region, the United States continues to operate as the leader of a widely supported rules-based international order. Most of the countries in Asia believe that the rules, norms, and institutions of this order have served their interests and are anxious to keep it healthy. When the United States works to shape Chinese behavior on such issues as exclusive economic zones and free transit of maritime shipping, therefore, it can anchor its approach in international law and norms and use established institutions (including such regional institutions as the Association of Southeast Asian Nations [ASEAN]) to magnify their impact. These tools, when properly employed, can allow the United States to approach the challenge of a rising China from a normative and institutional foundation that is widely perceived as legitimate and in the collective interests of Asian nations.

The nature of those U.S. advantages points to the right way to conceive of the defense-planning challenge in the region. Given issues of time and distance, and the fact that China’s burgeoning economy allows it to focus rapidly growing defense resources on a handful of specific military tasks, while the United States must be concerned with global responsibilities, the United States is unlikely to be able to sustain the sort of regional military predominance it has enjoyed for several decades. Therefore, it must do more than just add up capabilities that would be required to recapture such predominance. U.S. policy planners should first seek to set the regional context in the most advantageous manner and then target defense investments very precisely to gain the greatest competitive advantage in those areas. They must devise strategies that can thwart Chinese operations below the threshold of major war, as this is how China is currently working to achieve its objectives at lower risk.

U.S. Interests

The United States has several overarching interests in the Asia-Pacific region. The United States’ stated objectives are:

[R]edouble our commitment to the established alliances and partnerships

[R]einforce our commitment to freedom of the seas and the peaceful resolution of territorial and maritime disputes in accordance with international law.

[M]aintain a forward military presence capable of deterring and, if necessary, defeating any adversary. We will strengthen our long-standing military relationships and encourage the development of a strong defense network with our allies and partners. For example, we will cooperate on missile defense with Japan and South Korea to move toward an area defense capability. We remain ready to respond with overwhelming force to North Korean aggression and will improve options to compel denuclearization of the peninsula.

[M]aintain our strong ties with Taiwan in accordance with our “One China” policy, including our commitments under the Taiwan Relations Act to provide for Taiwan’s legitimate defense needs and deter coercion.¹⁷³

The United States seeks to strengthen its existing alliances with Japan, South Korea, Australia, Thailand, and the Philippines and aims to increase security engagement with other key partners in the region, including Indonesia, Vietnam, Singapore, and Malaysia. Finally, it hopes to discourage China from challenging the status quo in the region.

China’s Core Interests

Since the early 2000s, China has developed a series of “core interests,” which PRC State Councilor Dai Bingguo articulated at the July 2009 U.S.-China Strategic and Economic Dialogue.¹⁷⁴ These core interests include the following three goals:

1. preserving China’s basic state system and national security
2. protecting national sovereignty and territorial integrity
3. maintaining international conditions for China’s continued stable social and economic development.¹⁷⁵

The second core interest—protecting national sovereignty and territorial integrity—has been most frequently emphasized as a “core interest” since 2009. With this particular definition in mind, China has named three territories—Taiwan, Tibet, and Xinjiang—as core interests. Recent disputes, however, have centered not on these three territories, but on China’s maritime claims in the East and South China Seas. To date, China “has not unambiguously identified the South China Sea as one of its core interests.”¹⁷⁶ However, during a press conference in April 2015, Foreign Ministry Spokesperson Hua Chunying stated that, “China has indisputable sovereignty” over the Nansha Islands “and their adjacent waters” (the Nansha Islands, also known as the Spratlys, are located in the South China Sea). Hua also stated that the construction work underway on some of the islands would contribute to “better safeguarding [Chinese] territorial sovereignty and maritime rights and interests.”¹⁷⁷

The tremendous concern over territorial integrity and national sovereignty highlights Chinese leaders’ primary fear: that the loss of a territory could undermine the basis for Chinese Communist Party (CCP) rule and lead to the unraveling of the state. China’s claims in the East

¹⁷³ The White House, 2017c, pp. 46–47.

¹⁷⁴ “First Round of Sino-U.S. Economic Dialogue: Discussed Almost All Main Issues Except for Going to the Moon,” *China News Online*, July 29, 2009; U.S. Department of State, “Closing Remarks for U.S.-China Strategic and Economic Dialogue,” Washington, D.C., July 28, 2009.

¹⁷⁵ Terrence K. Kelly, James Dobbins, David A. Shlapak, David C. Gompert, Eric Heginbotham, Peter Chalk, and Lloyd Thrall, *The U.S. Army in Asia, 2030–2040*, Santa Monica, Calif.: RAND Corporation, RR-474-A, 2014, p. 11.

¹⁷⁶ Michael D. Swaine, “China’s Assertive Behavior—Part 1: On ‘Core Interests,’” *China Leadership Monitor*, No. 34, February 22, 2011, p. 9.

¹⁷⁷ Ministry of Foreign Affairs of the People’s Republic of China, “Foreign Ministry Spokesperson Hua Chunying’s Regular Press Conference on April 9, 2015,” Embassy of the People’s Republic of China in the Republic of Finland, April 9, 2015b.

and South China Seas are not as central to CCP legitimacy as is its claim to Taiwan. However, statements from Chinese officials that firmly assert China's willingness to defend its maritime rights and territorial sovereignty over disputed areas have narrowed leaders' room for negotiation in future crises, because these leaders will face a credibility problem with their citizens if they are seen as backing down in the event of a standoff.

The third core interest, ensuring the conditions for China's continued economic development, is arguably the most important for understanding the general thrust of China's strategy toward ASEAN states, particularly those maritime states critical to freedom of navigation. To maintain high economic growth rates and secure access to oil and other resources from the Middle East and elsewhere—especially in the face of what it perceives as U.S. encirclement—China invests heavily in the development of infrastructure to physically and technologically link the economies of Southeast Asia with the Chinese mainland.

Non-Interference: A Constant Narrative in PRC Foreign Policy

One concept of PRC foreign policy that dates back to the Mao Zedong era remains important in China's foreign policy lexicon: the principle of "mutual non-interference in internal affairs" ("互不干涉内政原则"), which first appeared in China's foreign policy toward its Asian neighbors in the 1954 "Five Principles of Peaceful Coexistence."¹⁷⁸ The general idea is that a state's sovereignty is paramount and cannot be infringed upon by outside powers. In order to maintain China's state system and national security, then, China aims to resist what it perceives as external interference in its internal affairs. For example, China frequently contests U.S. efforts to promote democracy, human rights, and the rule of law, branding these initiatives as tools of Western subversion and hegemony.¹⁷⁹ In fact, Beijing has frequently stated its adherence to a principle of "mutual non-interference in internal affairs" in conducting its foreign policy since the 1950s, although there are some indications that this stance might be changing as China's interests spread across the globe.¹⁸⁰ Still, many of Beijing's decisions to avoid taking a stance on foreign civil wars or other contentious political issues are directly linked to China's own domestic anxieties: Chinese officials remain perennially concerned about the possibility that the United States or the international community might intervene in a future crisis over Taiwan, Tibet, Xinjiang, or other sensitive areas, potentially threatening the stability and legitimacy of the Chinese state. With respect to the East and South China Sea disputes, Chinese leaders and the Chinese public do not consider Chinese behavior to constitute interference in other countries'

¹⁷⁸ Ministry of Foreign Affairs of the People's Republic of China, "China's Initiation of the Five Principles of Peaceful Co-Existence," webpage, undated.

¹⁷⁹ See Chris Buckley, "China Takes Aim at Western Ideas," *New York Times*, August 19, 2013.

¹⁸⁰ Mathieu Duchatel, Oliver Brauner, and Zhou Hang, "Protecting China's Overseas Interests: The Slow Shift Away from Non-Interference," Stockholm International Peace Research Institute, No. 4, June 2014; Oriana Skylar Mastro, "China's Military Is About to Go Global," *The National Interest*, December 18, 2014. We should clarify that China stands by noninterference for specific issues (responsibility to protect, sanctions, democracy promotion/protests, etc.). However, China interferes a lot in its own backyard—see Myanmar, Indochina, South China Sea, etc.

affairs because they perceive the disputed territories to be legitimate Chinese claims. However, U.S. attempts to propose or lead multilateral efforts to resolve disputes in these areas are perceived as interference in China's internal affairs.

Biding Its Time: PRC Foreign Policy from the 1980s to 2000s

Although the principle of noninterference has guided China's foreign policy since the 1950s, another concept that emerged in the late 1980s also influences China's thinking up to the present day. After Mao's death in 1976, China—then a developing country riddled with poverty and saddled with a weak military—began to enact economic reforms and open its borders to international trade. Chinese leader Deng Xiaoping recognized that China's economic development required peace with major powers, including the United States, and especially peace along China's borders. To accomplish this, he proposed the concept of “biding one's time and keeping a low profile, while still achieving limited goals” (“韬光养晦, 有所作为”) as a guiding principle for China's foreign policy.¹⁸¹ The idea behind the phrase is this: Since China is a developing country that must focus on pursuing economic growth, it should not take on a leadership role in international affairs or provoke conflict abroad, but instead keep a low profile to maintain the peace and stability necessary to accomplish goals that lead to further economic development. Analysts have used the shorthand “hide and bide” to describe China's foreign policy ever since, although there are signs (or at least debate) that China now aims to be a leader on the international stage.¹⁸²

The Xi Jinping Era: Redefining Old Concepts and Creating New Ones

In the wake of the global financial crisis in 2008, China began to show greater assertiveness in its foreign and security policies.¹⁸³ Since Xi Jinping became General Secretary of the CCP in November 2012 and assumed the presidency of the PRC in March 2013, this attitude and its corresponding behavior have intensified. In particular, under Xi's leadership, it appears that China's definition of its interests has broadened to include attaining (or, from the perspective of Chinese history, reclaiming) its role as the dominant regional power, although few Chinese commentators to date explicitly call for a return to the Sinocentric tributary order of centuries past. Several concepts highlight the key contours of Xi's foreign policy thinking.

Since 2012, Xi seems to have rejected “biding one's time and keeping a low profile” in favor of a new foreign policy concept: “striving for achievement” (“奋发有为”). This concept originated in the mid- to late 2000s when some Chinese foreign policymakers and analysts began to argue that China should move away from “keeping a low profile” and merely focusing on its own domestic economic development to “striving for achievement” and taking a more proactive

¹⁸¹ The phrase is a combination of “to restrain one's light” and “to hide from public eye for self-cultivation.”

¹⁸² Yang Wenchang, “My Views About ‘Tao Guang Yang Hui,’” *Foreign Affairs Journal*, No. 102, Winter 2011.

¹⁸³ Andrew Scobell and Scott W. Harold, “An ‘Assertive’ China? Insights from Interviews,” *Asian Security*, Vol. 9, No. 2, 2013, pp. 111–131.

role in its foreign policy. In other words, because it now possesses the capability to do so, China should begin to shape international society instead of just integrating into it. Some proponents of this concept even imply that China should reconsider its policy of noninterference and become more actively involved in global governance and issues of national importance. Although debate on this approach in China is ongoing, growing Chinese involvement in regional issues and international disputes—including UN peacekeeping activities and the 2015 nuclear negotiations with Iran—suggest that advocates of “striving for achievement” may be gaining ground.¹⁸⁴

Furthermore, in 2013, Xi began using the phrase “China Dream” or “Chinese Dream” (“中国梦”) as his catchphrase for guiding China’s domestic and foreign policy. It seems to be a departure from his predecessor Hu Jintao’s catchphrase “China’s peaceful rise” (“和平崛起”), later refashioned as “China’s peaceful development” (“和平发展”) which was designed to assure other countries that China’s increasing material strength would not threaten their peace and security. Xi described the “Chinese Dream” succinctly as “the great rejuvenation of the Chinese nation,” alluding to a historical narrative that emphasizes China’s humiliation at the hands of foreign powers during times of economic and political weakness over the past two centuries.¹⁸⁵ Specifically, the goal is to attain two rather vague benchmarks of economic prosperity—becoming a “moderately well-off society” (increasing per capita GDP to nearly \$10,000 per person) by 2020 and becoming a fully developed, modern nation (regaining status as a world leader in science, technology, economics, and military and political might) by 2049. This nationalist dream has four parts: economic, political, and military strength; equity, fairness, culture, and morality; harmony among social classes and ethnicities; and a healthy environment.¹⁸⁶

Importantly, this dream entails a more active role for China in international affairs, especially within its neighborhood, commensurate with its economic and military strength. At an October 2013 high-level work forum on “periphery diplomacy” (“周边外交”), Xi identified a four-part approach toward the Asia-Pacific: affinity or amity, sincerity, mutual benefit, and inclusiveness. Foreign Minister Wang Yi similarly declared that “China’s destiny is linked with those of peripheral countries.”¹⁸⁷

In practice, periphery diplomacy has meant a strong emphasis on strengthening economic relationships and connectivity with neighbors through initiatives that invest in the development of transportation and other infrastructure, such as the Silk Road and Maritime Silk Road

¹⁸⁴ Dingding Chen, “Chinese Foreign Policy Needs Major Reform,” *The Diplomat*, August 21, 2014; Yan Xuetong, “From Keeping a Low Profile to Striving for Achievement,” *Chinese Journal of International Politics*, Vol. 7, No. 2, Summer 2014, pp. 153–184.

¹⁸⁵ Robert Lawrence Kuhn, “Xi Jinping’s Chinese Dream,” *New York Times*, June 4, 2013.

¹⁸⁶ Kuhn, 2013.

¹⁸⁷ “Create a New Situation in Periphery Diplomacy and Promote Cooperation in the Asia-Pacific Region—Foreign Minister Wang Yi Discusses President Xi Jinping’s Visit to Indonesia and Malaysia and Attendance at 21st Informal Meeting of APEC Leaders,” *Xinhua*, October 8, 2013; quoted in Michael D. Swaine, “Chinese Views and Commentary on Periphery Diplomacy,” *China Leadership Monitor*, Vol. 44, Summer 2014.

Economic Belt, often referred to together as “One Belt One Road” (“一带一路”). This is an initiative that Xi first mentioned in a speech to the Indonesian parliament in September 2013 and that former Foreign Minister Li Zhaoxing described in a February 2015 speech as “the two wings of Asia.”¹⁸⁸ Drawing on the historical concept of the Silk Road and of maritime trade with India and the Arab world, the Maritime Silk Road concept emphasizes the development of transportation networks (high-speed rail, motorways, and ports) and other infrastructure (pipelines and fiberoptic cables) in order to enhance connectivity and, ultimately, cross-border economic flows throughout the region.¹⁸⁹ In November 2014, Xi pledged \$40 billion to establish a Silk Road Economic Fund to finance these types of projects in addition to the \$50 billion he pledged to the Asian Infrastructure Investment Bank.

Importantly, China’s periphery diplomacy, or foreign policy strategy toward the Asia-Pacific, has two competing aims. On the one hand, China aims to engage with ASEAN states to build a web of bilateral economic ties in order to “tie up certain nations’ incentives with China’s development,” thereby securing its leadership role in regional economic matters.¹⁹⁰ On the other hand, China aims to advance its territorial and resource interests and claims, sometimes through a carrot-and-stick strategy of rewarding countries that support China’s rise and punishing those who resist. The latter more aggressive aims, which appear to have the potential to disrupt the regional status quo, are in large part what provoked the U.S. “pivot” or “rebalance” to the Asia-Pacific in 2010 and 2011.¹⁹¹

For many decades, China was generally viewed as a patient actor, willing to plan and wait for decades to achieve its aims. However, Chinese analysts appear to believe that China is currently experiencing a “strategic window of opportunity” in which it can achieve its goal of national revitalization—and that this window will close within the next 20 years.¹⁹²

Chinese Concerns About the United States

Chinese leaders and foreign policy analysts have long been extremely conscious of the U.S. military presence in the Asia-Pacific, criticize U.S. “hegemony” (“霸权”) in the region and across the globe, and describe U.S. meddling in the region as “interference” (“干涉” or “干扰”) in its and others’ internal affairs. In the wake of the 2012 rebalance, Chinese academics and military strategists have expressed concerns that the United States is practicing a policy of

¹⁸⁸ Ministry of Foreign Affairs of the People’s Republic of China, “Building the Maritime Silk Road of the 21st Century with Open Mind and Bold Courage,” Embassy of the People’s Republic of China in the United States, February 12, 2015a.

¹⁸⁹ Wu Jiao and Zhang Yunbi, “Xi Calls for Building of New ‘Maritime Silk Road,’” *China Daily*, October 4, 2013.

¹⁹⁰ Swaine, 2014.

¹⁹¹ Evan S. Medeiros, Keith Crane, Eric Heginbotham, Norman D. Levin, Julia F. Lowell, Angel Rabasa, and Somi Seong, *Pacific Currents: The Responses of U.S. Allies and Security Partners in East Asia to China’s Rise*, Santa Monica, Calif.: RAND Corporation, MG-736-AF, 2008.

¹⁹² Evan S. Medeiros, *China’s International Behavior: Activism, Opportunism, and Diversification*, Santa Monica, Calif.: RAND Corporation, MG-850-AF, 2009, p. xvi.

“containment” (“遏制”) with respect to China.¹⁹³ Xi’s “new Asian security concept” (“新亚洲安全观”), articulated at the May 2014 Conference on Interaction and Confidence-Building Measures in Asia (CICA), seems to suggest that the United States is neither needed nor desired in managing Asian regional affairs.¹⁹⁴ Xi asserted that China and other East and Southeast Asian countries—not the United States—should determine the future of the regional order in Asia: “In the final analysis, it is for the people of Asia to run the affairs of Asia, solve the problems of Asia and uphold the security of Asia. The people of Asia have the capability and wisdom to achieve peace and stability in the region through enhanced cooperation.”¹⁹⁵ One example of this “Asia for Asians” attitude in action is the Xiangshan Forum, which Xi proposed as a regional security conference to rival the existing Shangri-La Dialogue run by the British think tank IISS.¹⁹⁶

Although the long-term implications of these new concepts are unclear, as U.S. policymakers analyze possible future courses of action in the Asia-Pacific, they should be aware of Chinese reactions to U.S. behavior in the region. Such considerations mean that the acquisition or deployment of additional U.S. military capabilities might not have a linear impact on the regional military balance if they provoke disproportionate Chinese responses. The impact on overall regional stability can be suboptimal if the capabilities deeply exacerbate China’s fears of U.S. military action and create an atmosphere of higher tension and greater chance of conflict by miscalculation. These concerns are not reasons to avoid bolstering the U.S. regional presence, but they do speak to the need for a nuanced and thoughtful approach.

The People’s Liberation Army (PLA) has initiated a multifaceted foreign engagement policy to reflect China’s diplomatic strategy. The PLA evolved from a very isolated institution, with few outside contacts to a participant in UN Peacekeeping operations. Since 2008, it has patrolled the Gulf of Aden as part of a multilateral anti-piracy initiative. It has expanded its military attaché corps to more than 100 foreign capitals. It even participates in U.S.-led activities. The PLA was included for the first time as a nonobserver in the U.S.-led Rim of the Pacific (RIMPAC) exercise in July 2014; China and ASEAN signed their first humanitarian assistance/disaster relief (HA/DR) cooperation agreement in late 2014; and the PLA was involved in the Cobra Gold multilateral exercise in February 2015.

¹⁹³ Yong Deng, “Hegemon on the Offensive: Chinese Perspectives on U.S. Global Strategy,” *Political Science Quarterly*, Vol. 116, No. 3, Autumn 2001, pp. 343–365; Medeiros, 2009.

¹⁹⁴ Curtis Chin, “Xi Jinping’s ‘Asia for Asians’ Mantra Evokes Imperial Japan,” *South China Morning Post*, July 14, 2014.

¹⁹⁵ Xi Jinping, “New Asian Security Concept for New Progress in Security Cooperation,” Remarks at the Fourth Summit of the Conference on Interaction and Confidence Building Measures in Asia, Shanghai Expo Center, Ministry of Foreign Affairs of the People’s Republic of China, May 21, 2014.

¹⁹⁶ Ankit Panda, “China Creates New ‘Asia for Asians’ Security Forum,” *The Diplomat*, September 15, 2014.

ASEAN States' Interests

Regional actors' interests span a broad continuum that reflects their range of political systems, legal norms, levels of economic development, and (particularly relevant for our purposes) relationships with the United States, China, and each other. Several of the countries within ASEAN face basic governance and economic challenges. They prefer to manage foreign affairs in ways that contribute to their own domestic stability as well as broader regional stability. ASEAN is a pact based on mutual noninterference and prefers a consensus-driven, mutual respect–based approach for tackling regional issues. This helps explain why many ASEAN members—especially smaller states—have sought to resolve territorial disputes in the South China Sea via multilateral mechanisms, including appeals to the International Court of Justice.

Many—although certainly not all—ASEAN states are developing countries. Thus, one of their primary interests is promoting their economic development by increasing trade and seeking investment from larger, wealthier states in the region, including the United States, Japan, and China. ASEAN has an ambitious goal to create an ASEAN economic community—a single market, economic union that will integrate the member states' economies. Although this remains merely a vision for future economic integration, ASEAN has worked to boost trade among members with such steps as creating the ASEAN Free Trade Area in 1992. This was followed by further reductions in trade barriers when the ASEAN Trade in Goods Agreement was implemented in 2010. It is unclear whether the recent European Union troubles with Brexit and Greek debt have dampened any of ASEAN's enthusiasm for monetary union, but further intra-ASEAN integration could have implications for members' economic ties with China, the United States, and Japan.

Because most of the ASEAN states benefit from economic ties with both the United States and China, they avoid alignment with either side against the other. In general, ASEAN states appreciate Chinese largesse but are wary of China's growing economic influence and power in the region, especially given its geographic proximity. At the same time, they fear alienating China and thus losing Chinese trade and investment if they align more closely with the United States. Many analysts believe that ASEAN states are hedging their bets, avoiding either balancing or band-wagoning.¹⁹⁷

Although these countries have interconnecting interests, there are not clear strategic coalitions forming among them. As a result, they have strong incentives to pursue positive relations with both the United States and China and to embrace enhanced security agreements and stronger trading ties with the United States, as well as with Chinese initiatives and institutions—such as One Belt One Road and the Asian Infrastructure Investment Bank—in order to increase regional connectivity through building infrastructure. Historical dynamics and

¹⁹⁷ Van Jackson, "The Rise and Persistence of Strategic Hedging Across Asia: A System-Level Analysis," in Ashley J. Tellis, Abraham M. Denmark, and Greg Chaffin, eds., *Strategic Asia 2014–15: U.S. Alliances and Partnerships at the Center of Global Power*, Seattle, Wash.: The National Bureau of Asian Research, 2014, pp. 317–344.

worsening disputes over territorial claims have inflamed tensions between China and Japan, the Philippines, and Vietnam, but officials from these countries and the United States have stated policies affirming the importance of regional peace and stability for mutual prosperity.¹⁹⁸

Domestic public opinion varies greatly. Japanese citizens hold very negative views of China and vice versa. Japan, the Philippines, and Vietnam have more-positive views of the United States than of China, while people in Indonesia and Malaysia have more-positive views of China than of the United States.

All of the ASEAN nations share an interest in peace in the South China Sea, through which most of the region's trade flows, particularly energy resources.¹⁹⁹ This does not, however, guarantee peace in the South China Sea. After all, global trade and economic interdependence—and the incentives for cooperation that they produced—were not enough to prevent European countries from blundering into World War I.

Bilateral Trade Growth

Although some regional leaders stoke nationalism and highlight sovereignty disputes, there are many forces of integration at work in the region. Global trade growth has outstripped global economic growth for most of the post-World War II period and, as a region, East Asia has played an important role in this growth. This growth in trade was facilitated by several factors that began with a general economic opening to trade immediately after World War II; a series of global trade agreements; and, more recently, the opening of both the former Warsaw Pact countries and China to international trade.

Intra-Asian trade has evolved from simpler trade in finished goods, mostly linking companies bilaterally, to today's more "vertically integrated" system, in which inputs and intermediate goods often move across several borders on their way to being made into a finished product. This is especially true of the Asia-Pacific, where most countries pursue economic strategies focused on export-led growth and where trade in intermediate inputs between developing Southeast Asian nations and China in particular has increased regional economic integration and industrial development.²⁰⁰ Research suggests that intraregional trade has surged in large part because of the transition away from textile production toward electronics and automobiles, which are dependent on, and have therefore fueled, cross-border trade in intermediate goods.²⁰¹ High trade volumes

¹⁹⁸ See, for example, Liu Zhenmin, "Laying the Foundations of Peace and Stability for an Asian Community of Shared Destiny," *China International Studies*, Vol. 49, No. 17, 2014; Ministry of Foreign Affairs of Japan, *Diplomatic Bluebook 2014 Summary, Chapter 3: Japan's Foreign Policy to Promote National and Worldwide Interests*, Tokyo, 2014, pp. 27–39; Association of Southeast Asian Nations "Our People, Our Community, Our Vision," Chairman's Statement of the 26th ASEAN Summit, Kuala Lumpur and Lagkawi, April 27, 2015.

¹⁹⁹ U.S. Energy Information Administration, "The South China Sea Is an Important World Energy Trade Route," webpage, April 4, 2013.

²⁰⁰ Yin Xingmin, "China's Intermediate Goods Trade with ASEAN: A Profile of Four Countries," in Mitsuhiro Kagami, *Intermediate Goods Trade in East Asia: Economic Deepening Through FTAs/EPAs*, Bangkok, Thailand: Bangkok Research Center, Research Report No. 5, 2011, pp. 68–118.

²⁰¹ Yin, 2011, p. 80.

between China and its regional partners, including Japan, suggest that the Asia-Pacific is characterized by high economic interdependence, particularly in the manufacturing and resource sectors.

Territorial Disputes with China

ASEAN nations have many territorial and maritime disputes with China (as well as with each other). Thus, they share an interest in deterring China from attempting to settle these claims by force, or, as seems most likely, creating facts on the ground that may make it unlikely for its neighbors to be able to share or gain control over the disputed areas.

China and Japan

Japan's Asia policy increasingly incorporates security priorities in addition to economic concerns. For example, Japan's most recent defense white paper explicitly denounces increasing Chinese assertiveness in the East and South China Seas,²⁰² and Japan has deepened security cooperation with Vietnam and the Philippines in particular.²⁰³ Within one year of returning to power in late 2012, Prime Minister Shinzō Abe visited all ten ASEAN countries, becoming the first Japanese prime minister to do so while in office.

China and Japan have disputes over territory and maritime sovereignty in the East China Sea. The territorial dispute is over the Senkaku/Diaoyu islands, which Japan administers but China claims should have been returned to China at the end of World War II. The dispute erupted in 2012, when the Japanese government leased three of the main islands from a private citizen so that it could control all five of the main islands. China reacted angrily and there were anti-Japanese demonstrations in China. Although there have been some increased tensions around the Senkakus, the conflict has attained a stasis. Japan has refrained from building military installations on the islands, and China sends maritime patrols close to the island periodically. However, China has not used force in these islands, although it has in other territorial disputes with neighbors.

The two countries also dispute the demarcation of maritime sovereignty in the East China Sea. Japan seeks recognition of the median line between the coasts of Japan and China as delineating maritime rights. China claims maritime sovereignty over the continental shelf, which extends beyond the median line.²⁰⁴ About 160,000 square kilometers are in dispute, which is about twice the size of Lake Superior. For more than 100 years, such disputes have stoked nationalism in both China and Japan, and this is likely to continue.

²⁰² Masaaki Kameda, "Defense White Paper Stresses Threat Posed by China," *Japan Times*, July 21, 2015.

²⁰³ See, for example, Ministry of Defense of Japan, "Chapter 3: Active Promotion of Security Cooperation," in *Defense of Japan 2015*, Tokyo, 2015, pp. 270–291. Links to white papers from 2005 to 2015 are available at Ministry of Defense of Japan, "Defense of Japan (Annual White Paper)," webpage, undated.

²⁰⁴ See M. Taylor Fravel, "Explaining Stability in the Senkaku (Diaoyu) Islands Dispute," in Gerald Curtis, Ryosei Kokubun, and Wang Jisi, eds., *Getting the Triangle Straight: Managing China-Japan-U.S. Relations*, Washington, D.C.: Brookings Institution, 2010.

China and Vietnam

China and Vietnam normalized relations in 1991 and settled bilateral territorial claims in the Gulf of Tonkin in 2000 but competing claims in the South China Sea and resulting fishing and other maritime disputes have led to heightened tensions. Vietnam has recently attempted to bolster its defense ties with the United States, Japan, Australia, and India as a bulwark against Chinese military expansionism in the South China Sea.²⁰⁵

China and Malaysia

Strong economic ties may explain why Malaysia has had a relatively muted approach to its territorial disputes with China.²⁰⁶ However, in May 2009, Malaysia and Vietnam tendered a joint petition to the Commission on the Limits of the Continental Shelf, which disputed China's territorial claims. Beijing successfully lobbied the Commission not to review the joint petition. In 2014, Malaysia opted for a quiet bilateral diplomatic approach after three PLA Navy (PLAN) ships were reported near James Shoal, one of Malaysia's primary territorial claims in the South China Sea.²⁰⁷ However, Malaysia has become less quiet since 2014.²⁰⁸ China and Malaysia held their first joint live troop military exercise in September 2015, which Chinese military media highlighted as the largest bilateral military exercise to date between China and an ASEAN country.²⁰⁹ However, Malaysia has expressed concerns about maintaining free shipping lanes. In June 2018, Malaysian Prime Minister Mahathir Mohamad and Japanese Prime Minister Abe agreed to "keep the Strait of Malacca and the South China Sea for navigation for all countries."²¹⁰

Ethnic Chinese form the second-largest ethnic group in Malaysia; Malaysia is the only country in Southeast Asia that has an ethnic Chinese-based political party. There are strains between ethnic Chinese in Malaysia and majority-Muslim ethnic Malays.²¹¹

²⁰⁵ Derek Grossman, "The Quad Is Not Enough," *Foreign Policy*, October 19, 2018.

²⁰⁶ For more on developments in Sino-Malaysian economic relations, see Lee Kam Hing, "Malaysia-China Economic Relations: 2000–2010," in Lam Peng Er, Qin Yaqing, and Yang Mu, eds., *China and East Asia: After the Wall Street Crisis*, Singapore: World Scientific Publishing, January 2013.

²⁰⁷ Prashanth Parameswaran, *Playing It Safe: Malaysia's Approach to the South China Sea and Implications for the United States*, Washington, D.C.: Center for a New American Security, February 2015.

²⁰⁸ "China's Two-Year Intrusion into Sarawak Waters," *Free Malaysia Today*, August 15, 2015; and "China Ships Trespassing off Sarawak for Two Years: KL," *Straits Times*, August 16, 2015.

²⁰⁹ "China, Malaysia Conclude First Joint Military Exercise," *Xinhua*, September 22, 2015; Chris Johnson, "PLA's Deeper Engagement in Military Drills Aligns with Xi's Call for 'Active' Chinese Diplomacy," Center for Strategic and International Studies, Asia Maritime Transparency Initiative, March 3, 2015.

²¹⁰ Malaysia Prime Minister's Office, news release, June 12, 2018; quoted in Duncan DeAeth, "Japan, Malaysia Will Cooperate to Ensure Freedom of Navigation in S. China Sea," *Taiwan News*, June 13, 2018.

²¹¹ "China Flaunts Political Clout in Malaysia with Envoy's Defiance," *BenarNews*, September 29, 2015; Yiswaree Palansamy, "Dr. M: China Envoy 'Concerned' over Putrajaya's Use of Race Card," *The Malay Mail Online*, September 29, 2015.

China and Indonesia

In 2010, Indonesia protested China's claim to the Natuna Islands at the UN.²¹² In August 2018, Indonesian Defense Minister Ryamizard Ryacudu came to Washington to meet with then-Defense Secretary James Mattis and, without mentioning China, reaffirmed the "long-standing defense relationship between the United States and Indonesia."²¹³ On the Chinese side, PRC analysts appear to be paying more strategic attention to Indonesia as well.²¹⁴

China and the Philippines

Mutual accusations of illegal fishing by China and the Philippines and increasing hostility regarding activities in disputed waters—particularly China's occupation of Scarborough Shoal in 2012—have exacerbated historical friction in the relationship.²¹⁵ Since the election of President Rodrigo Duterte in 2016, the Philippines' stance regarding its South China Sea dispute with China and its relations with the United States have been in flux. Immediately after his election, Duterte flew to China, announced a "separation" from the United States, and pledged that he had realigned with China's "flow."²¹⁶ He took a very conciliatory line and did not capitalize on a Permanent Court of Arbitration decision that ruled against China.²¹⁷ In 2018, the Duterte administration appeared to shift toward a tougher approach, issuing three "red lines" to warn China against unilateral exploration of energy resources in Philippine-claimed waters, reclamation work on the Scarborough Shoal, or coercive activities toward Philippine ships in the South China Sea.²¹⁸

Regional Countries' Interests and Context: Implications for U.S. National Security Planning and Defense Requirements

The complex relationships between China and its neighbors hold at least three implications for U.S. planning and potential defense requirements in Asia.

²¹² Ann Marie Murphy, "Strategic Posture Review: Indonesia," *World Politics Review*, September 20, 2011. Indonesia considers that it has maritime boundary disputes with other countries only if there are overlapping maritime entitlements between them pursuant to the International Law of the Sea. Because China's claims are not consistent with the Law of the Sea, Indonesia does not believe that it has to deal with China when it comes to maritime entitlement in the South China Sea. I Made Andi Arsana, "Is China a Neighbor to Indonesia?" *Jakarta Post*, August 8, 2011.

²¹³ DoD News, "Mattis, Indonesian Counterpart Reaffirm Defense Relationship," news release, U.S. Department of Defense Media Activity, August 28, 2018.

²¹⁴ Shanghai Institutes for International Studies, *China's Global Strategy, 2012–2023*, September 2013, pp. 4–10.

²¹⁵ "Philippine Navy Chief: China Is Not Expanding Territory in South China Sea," *China Military Online*, August 12, 2015.

²¹⁶ Ben Blanchard, "Duterte Aligns Philippines with China, Says U.S. Has Lost," Reuters, October 20, 2016.

²¹⁷ Permanent Court of Arbitration, "PCA Press Release: The South China Sea Arbitration (The Republic of the Philippines v. The People's Republic of China)," webpage, July 12, 2016.

²¹⁸ Richard Heydarian, "Duterte's Quiet Pivot," *Nikkei Asian Review*, October 16, 2018.

First, this constellation of interests reinforces the essential U.S. competitive advantage in the region of operating as the de facto leader of an informal and diverse multilateral set of countries who are all interested in avoiding extreme levels of Chinese belligerence. As noted earlier, all of the regional nations crave good relations with both China and the United States. However, their primary concerns focus on possible Chinese coercion and eventual military action, and they have an appetite for improving working relations with the United States as a hedge against these risks.

This first implication points to opportunities for bilateral and multilateral regional efforts to enhance deterrence. These efforts can include security assistance and train-and-advise missions to enhance the capabilities of regional actors, joint exercises where feasible, and multilateral work on norms of conduct that establish clear expectations for Chinese behavior. Such efforts also reemphasize the value of carefully calibrated U.S. regional military activities—such as freedom of navigation operations—designed to signal to regional actors that the United States intends to stay engaged as a lead deterrent force.

Second, however, the interests of regional countries limit peacetime cooperation and constrain U.S. military operations and deployments. None of these countries want to be forced to choose between the United States and China, and those who are not already formal U.S. treaty allies do not want to be viewed by China as de facto U.S. allies. Vietnam, Singapore, Indonesia, and India value their independence above all in foreign policy. The United States must play its cards very carefully in the region; overplaying its hand would be counterproductive in sustaining support for deterrence of Chinese aggression. Some countries will remain reluctant to train or exercise with U.S. forces to the degree that Washington would prefer.

Third, historical animosities between Asian countries remain a barrier to multilateral cooperation. The most obvious is the tension between Japan and South Korea, a relationship that inhibits deeper trilateral cooperation with the United States on such issues as North Korea and Chinese aggression. U.S. policymakers will have to work to sidestep these fraught relationships and not expect a seeming alignment of interests to overcome them.

Chinese Military Growth and Emerging Capabilities

Emerging Chinese military capabilities could pose significant problems for the United States in several important ways, as we will outline below. This analysis suggests that China's growing capabilities will pose eventually insurmountable challenges to some of the more ambitious versions of U.S. regional missions, such as open-source notions of elaborate Air-Sea Battle concepts that envision significant operations into mainland China. However, U.S. objectives are not aggressive, and the analysis suggests that the United States, working with regional partners, ought to be capable of deterring China from seizing key territories in the East and South China Seas.

China would come to any conflict significantly stronger than it was the last time it took provocative actions in the Taiwan Straits in 1996. Its military spending has outpaced the rest of the world's over the past 25 years, with the exception of the United States. It has the largest population of any nation and the second-largest economy in the world, which could help it

sustain a lengthy and costly war. China's size and terrain also make it easier to hide its weaponry, including long-range surface-to-surface, anti-ship, and anti-aircraft missiles.

If a conflict with Japan, the Philippines, or Taiwan were to escalate to war, the United States would start with one significant disadvantage: It would have to project power across the Pacific Ocean to China's neighborhood. In recent foreign conflicts, it has taken months for the United States to build up its military forces, but a strategy for countering China may dictate a much faster timeline for action. Once U.S. forces arrive in theater, they would confront a well-equipped Chinese military already several days—if not weeks—into its campaign.

Nevertheless, the United States, working with regional partners, ought to be capable of sustained credible posture for key defensive missions in places where China must project power further from home—namely, the East and South China Seas.

The one possible exception, and the most challenging mission in relation to possible Chinese aggression, has been and remains the defense of Taiwan.

Anti-Access

China might employ anti-access capabilities to keep the United States from projecting combat power into the region. China has highly effective anti-access capabilities in the form of a large arsenal of ballistic and cruise missiles, as well as the complete “kill-chain” with the sensors and C2 necessary to target U.S. forces. Anti-access capabilities could strike several types of targets, but we will focus on air bases and surface ships in this analysis.

DoD reports that the PLA has 200 to 300 conventional medium-range ballistic missiles (MRBMs) and a similar number of ground-launched cruise missiles with ranges of more than 1,500 km. Depending on their accuracy and reliability, these weapons could be used to attack airfields throughout the region, including those used by U.S. forces in Japan.²¹⁹ The time to repair the damage can vary, but a planning factor of eight hours is reasonable.²²⁰ An eight-hour window might allow China to prevent sortie generation from numerous runways within 1,500 km of China for several days. The DF-26 intermediate-range ballistic missile (IRBM) has a range of 4,000 km, and a variety of anti-ship cruise missiles can be launched by submarines and bombers.²²¹ These missile systems also could target U.S. bases on Guam. (See Table 5.1).

²¹⁹ China is reported to have missiles with very low CEP. With a 50-m CEP, two missiles have a very high probability of cutting a runway. CEPs need to get below 100 m to be accurate enough for this purpose. See Michael J. Lostumbo, Michael J. McNerney, Eric Peltz, Derek Eaton, David R. Frelinger, Victoria Greenfield, John Halliday, Patrick Mills, Bruce R. Nardulli, Stacie L. Pettyjohn, Jerry M. Sollinger, and Stephen M. Worman, *Overseas Basing of U.S. Military Forces: An Assessment of Relative Costs and Strategic Benefits*, Santa Monica, Calif.: RAND Corporation, RR-201-OSD, 2013, p. 396.

²²⁰ See Eric Heginbotham, Michael Nixon, Forrest E. Morgan, Jacob Heim, Jeff Hagen, Sheng Tao Li, Jeffrey Engstrom, Martin C. Libicki, Paul DeLuca, David A. Shlapak, David R. Frelinger, Burgess Laird, Kyle Brady, and Lyle J. Morris, *The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996–2017*, Santa Monica, Calif.: RAND Corporation, RR-392-AF, 2015, pp. 55–65.

²²¹ Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2017*, Washington, D.C., May 15, 2017, p. 95.

Table 5.1. Chinese Long-Range Missile Systems

System	Range (km)	Number of launchers	Munitions	Target
DF-26 IRBM	4000	16	N/A	Land
DF-16 MRBM	800 - 1000	12	Estimated 200-300 missiles	Land
DF-21C MRBM	2500	36		Land
DF-21D (CSS-5) MRBM	1500	18		Ships
DF-11A (CSS-7) SRBM	Up to 600	108	Estimated 1200 missiles	Land
DF-15B (CSS-6) SRBM	Up to 600	81		Land
CJ-10 GLCM	1500+	54	Estimated 200-300 missiles	Land

SOURCE: Data are from Heginbotham et al., 2015.

NOTE: SRBM = short-range ballistic missile. GLCM = ground-launched cruise missile.

Historically, the United States has used a mix of permanent bases and contingency bases in wartime. For instance, to support operations in Vietnam, the United States increased the number of air bases from 11 to 33, but since then has often added more modestly to existing bases.²²² For example, if the United States were to increase its bases from 11 to 33, then China would be forced to spread its arsenal to attack a much greater number of bases (and note that many of the airfields will have more than one runway). Depending on the percentage of missiles devoted to runway attacks, the PLA might be able to shut down operations for one to four days.

Alternatively, PLA forces could use these weapons to attack aircraft on the ground, either because that is their preferred target, or because the CEP of their missiles is not low enough to attack runways. Weapons with 200-m CEP that disperse submunitions over a large area (for example, over 275 m) can still effectively target aircraft on the ground.²²³

Surface ships also can be attacked with ballistic and cruise missiles. The challenge for the attackers is to find, fix, and target a fast-moving ship so that their area weapons can successfully

²²² Lostumbo et al., 2013, p. 108.

²²³ Lostumbo et al., 2013, p. 397; Richard Hundley, *Past Revolutions, Future Transformations: What Can the History of Revolutions in Military Affairs Tell Us About Transforming the U.S. Military?* Santa Monica, Calif.: RAND Corporation, MR-1029-DARPA, 1999, pp. 5–28.

engage it. In the case of long-range ballistic and cruise missiles, the time of flight of the weapon adds to the uncertainty, because the target continues to move during the minutes of flight from weapon launch to potential impact. Weapon systems can compensate for these latencies by having multiple warheads and an ability to direct those warheads to the target, as long as the target falls within a certain area, or *basket*, that the weapon sees when it first acquires the target with its sensors. If this basket, or *missile-kill radius*, is equal to or larger than the targeting location uncertainty, and if the probability that the weapon will score a hit on a target within its basket is high, then the attacker is likely to score a hit with a small number of attacking weapons. Conversely, if the missile-kill radius is smaller than the target location uncertainty, then the number of weapons required can climb so high as to become infeasible.

If the PLA can find, fix, and target a large ship—such as an aircraft carrier—in less than 15 minutes, it could launch between two and 14 weapons. Given the importance of the target, this number of weapons is a reasonable price. If C2 delays take more than 15 minutes, the number of weapons necessary increases very dramatically.²²⁴

A fast-moving aircraft carrier is a difficult target to hit, and because the number of appropriate anti-ship ballistic missiles is rather limited, the PLA is likely to only take shots when it has reasonable odds of hitting the target. This places a premium on high-quality sensors and fast C2 reaction. Low-powered over-the-horizon (OTH) radars are one source of initial cuing information about the area in which an aircraft carrier might be operating. They are very useful because of their long-range capabilities but cannot precisely fix the location of a ship. Instead, OTH radars can cue other, more precise sensors to look in specific areas. These sensors could be airborne or space assets. An airborne sensor provides flexibility but must be protected. Several different kinds of PLA satellites—including electro-optical or various radar wave forms—also could be used for this mission.

DoD recognizes the importance of the PLA's kill chain, which makes it increasingly difficult for surface combatants and short-range tactical aircraft to enter and operate in or near the East and South China Seas. This military-technical problem creates a concern that, if the United States can be denied access to allies and partners, they are more vulnerable to Chinese aggression or coercion. There are two approaches to addressing the military-technical problem of China's anti-access capabilities.

The Air-Sea Battle operational concept proposed by the former Chief of Naval Operations and Chief of Staff of the Air Force was to develop the offensive strike and cyber capabilities to destroy an adversary's sensor, C2, and missile systems, thus "breaking the kill chain" in its anti-access system.²²⁵ This approach would seek to restore U.S. air superiority and sea control against

²²⁴ See Heginbotham et al., 2015, p. 168, Table 7.2.

²²⁵ For example, "Air-Sea Battle defeats threats to access by, first, disrupting an adversary's command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems; second, destroying adversary weapons launchers (including aircraft, ships, and missile sites); and finally, defeating the weapons an adversary launches" (Jonathan Greenert and Mark Welsh, "Breaking the Kill Chain," *Foreign Policy*, May 16, 2013).

any potential adversary. Ground-based OTH radars located deep within China and PLA satellites are vulnerable, but striking these targets is not automatic because of the risk of escalation. How would China react to strike missions launched deep into its territory? What constraints, if any, would the two sides place on destructive attacks on satellites? Part of the negative reaction to the Air-Sea Battle concept was its focus on attacking such systems. This puts pressure on the United States to seek to jam or fool these systems.

The disadvantages of applying offensive Air-Sea Battle (as the former service chiefs defined it) to China become clear when policymakers consider the likely reactions to destroying hundreds of targets on the mainland that China deems essential for self-defense.²²⁶ China is no more likely to accept the loss of its critical defense systems than the United States would be willing to accept the loss of its Pacific Fleet without escalating the conflict to a wider war, and perhaps eventually to the nuclear threshold. An offensive doctrine to destroy China's A2/AD system is destabilizing because each side would have a military incentive to strike first based on a "use it or lose it" calculus. This incurs the risk of rapid vertical escalation, leaving policymakers with little time for developing diplomatic solutions to defuse a crisis.

On the other hand, as suggested earlier, a defensive approach would aim not to destroy China's anti-access capabilities, but instead to deny China's ability to project power over water to conduct coercive strikes or an amphibious assault against U.S. allies (and, if policymakers choose, Taiwan). China's principal means to conduct these hostile acts include strike aircraft, surface-to-surface missiles, naval vessels, and amphibious landing craft. Thus, the military-technical problem that would drive joint concept and capability development is not China's A2/AD per se, but how to defend U.S. allies by defeating China's offensive power-projection capability.

U.S. planning for dealing with the possibility of Chinese aggression has always incorporated aspects of direct defense. A greater focus on friendly or "Blue A2/AD"—recognizing that it works in both directions and that the same worries it creates for the U.S. military can be turned back against the PLA—offers opportunities to present robust defenses while reducing the need for potentially escalatory strikes on the Chinese mainland.²²⁷ A direct-defense approach would concentrate on defeating China's means for projecting power by, for example, employing submarines and long-range anti-ship missiles (LRASMs) fired from any number of air, maritime, and allied land platforms to inflict significant losses on China. China's A2/AD systems would be of marginal value in countering defensive systems that operate undersea, at stand-off range, or dispersed in mobile or hardened positions on land.

In effect, countering Chinese anti-access capabilities with Blue A2/AD would render the "near seas" contested commons where both sides could deny access or impose unacceptable costs against aggressive actions by the other, but neither side need strike first to protect its forces.

²²⁶ Kelly et al., 2014.

²²⁷ Terrence Kelly, Anthony Adler, Todd Nichols, and Lloyd Thrall, *Employing Land-Based Anti-Ship Missiles in the Western Pacific*, Santa Monica, Calif.: RAND Corporation, TR-1321-A, 2013.

Such a circumstance would be strategically, operationally, and tactically more stable and less prone to crisis than an alternative that yields significant advantages to the side that hits first.

Policymakers should recognize that the goal of sustaining U.S. military dominance over China is a dangerous and expensive illusion. Both countries are mutually vulnerable, both militarily and economically, in a manner that should constrain rational actors. Consistent with this reality, mutual A2/AD defense leads not to Chinese domination of Asia, but to better prospects for a stable relationship between great powers. Both sides could defend their key interests with less incentive to strike first.²²⁸ Because allies and partners will still require U.S. military support, Blue A2/AD provides an acceptable concept to build military partnerships. Adopting a Blue A2/AD defense would force China onto the wrong side of the capability and cost curve if it wants to pursue a foreign policy based on aggression. This supports allied desires to trade with China and avoid a cold war, but still hedge with the United States to maintain their independence.

Area Denial

Area denial refers to capabilities that prevent or hinder U.S. operations in a given area. It is closely related to anti-access but differs in that anti-access threats attack the sources of combat power (primarily air and sea forces attempting to enter an area), while area denial threats prevent combat forces from conducting their operations once in a particular area. Some of China's principal area denial forces are shown in Table 5.2.

Table 5.2. Chinese Long-Range SAM, Rocket Artillery, and Anti-Ship Missile Systems

System	Range (km)	Number of launchers	Munitions	Target
S-300 PMU/PMU1/PMU2	200	160	-	Aircraft
PHL-03/AR-3 MRL	100-220	175	-	Land
Anti-ship cruise missiles	70 - 400	528 (22 regt)	-	Ships

SOURCE: Data are from Heginbotham et al., 2015.

Our assessment will focus on threats to combat aircraft conducting their missions. Area denial threats could come from other aircraft or from SAMs. When coupled with radar and other sensors used to detect aircraft, these integrated air defense systems (IADS) can provide very sophisticated defenses that either can deny air space to U.S. forces or exact a high price of entry.

China can field a dense and sophisticated IADS by combining layers of SAMs with fighter aircraft. China has imported some of the most sophisticated SAMs from Russia for many years,

²²⁸ Terrence Kelly, David C. Gompert, and Duncan Long, *Smarter Power, Stronger Partners*, Volume I: *Exploiting U.S. Advantages to Prevent Aggression*, Santa Monica, Calif.: RAND Corporation, RR-1359-A, 2016.

including the S-300, but also has begun to develop its own sophisticated systems, such as the HQ-9 and short-range systems like the HQ-12. This allows China to employ sophisticated cooperative defense techniques to make it difficult for intruders to target specific elements of the IADS without other elements engaging in defense. Using these systems, the area that China can deny stretches out many miles from China's coast. A DoD report estimates that it reaches out over Taiwan.²²⁹ China reportedly is expecting delivery of Russia's most sophisticated long-range system, the S-400, in 2020.

SAM development in Russia and China has improved the abilities of the radar, both in terms of its range and discrimination of targets, as well as the range of their interceptors. From the S-300 to the S-400, the interceptor ranges have increased from 150 km to 200 km and, finally, to an estimated 400 km.²³⁰ This poses problems for U.S. efforts to engage SAM radars because current weapons do not match these ranges. Both the HARM and the small diameter bomb (SDB) have ranges of about 110 km, depending on their launch altitude.²³¹ The implication is that the United States will need aircraft with very low radar cross-section (RCS) in order to operate in areas within range of an S-300.²³²

The SEAD mission will get harder as China continues to invest in advanced aircraft and SAMs with long-range interceptors and increasingly sophisticated tracking radars that attempt to locate low-RCS aircraft. The PLA has a structural advantage in that U.S. low-RCS aircraft have operated for many years using the RCS technology available when they were designed and built, but the cycle of radar development and fielding can be faster. The United States can compensate in two ways: by developing longer-range and faster missiles and by improving onboard capabilities—such as jammers and other electronic warfare capabilities—to destroy or suppress Chinese air defenses.

However, neither approach would quickly neutralize China's sophisticated air defense network, which would remain an effective area-denial capability for the duration of a conflict between the United States and China. Once again, a more effective and efficient approach would be to develop friendly area-denial capabilities that can interdict Chinese ships, aircraft, and missiles from stand-off range to minimize the operational impact of China's air defense network.

U.S. Air Superiority Is Eroding

In the past 25 years, China took an air force that featured the technology of the 1950s and began a concerted effort to retire old systems while purchasing advanced Russian platforms and investing in indigenous capabilities to produce modern fighters. Although its aircraft and pilots continue to lag U.S. capabilities, the PLA can compensate for some of these shortfalls in several ways.

²²⁹ Office of the Secretary of Defense, 2017, p. 78.

²³⁰ Heginbotham et al., 2015, p. 121.

²³¹ Heginbotham et al., 2015, p. 120.

²³² Heginbotham et al., 2015, pp. 122–124.

The PLA modernization effort has opted for quality over quantity. It cut the number of fighters in its inventory by almost half, eliminating 2nd-generation aircraft while acquiring more than 900 4th-generation aircraft. Now the majority of fighter aircraft operated by the PLA are 4th-generation aircraft. This includes the indigenous J-10, as well as the J-11 (Su-27) and J-16 (Su-30). The PLA currently has two other fighters under development, the J-20 and J-31. The most advanced air-to-air weapon in its inventory, the PL-15, outranges the U.S. AIM-120 Advanced Medium-Range Air-to-Air Missile (AMRAAM). The outcome of an engagement is determined by many factors, but having a longer-range weapon is a big advantage as long as one's radar can acquire targets at the full kinematic range of the weapon. That is where the low RCS offers an advantage to the United States. The exact exchange ratio is highly uncertain, but previous estimates have assumed that a U.S. 5th-generation aircraft may have a 22-to-1 advantage over a J-11B (indigenous upgraded Su-27) with PL-12 air-to-air missiles, but when the same J-11B flies with longer-range PL-15 missiles, the exchange ratio may fall to something like 5 to 1.²³³ Whatever the exact ratios, this estimate gives a sense of how dramatically advantages can erode as adversaries invest in air dominance capabilities.

The United States has many more 4th- and 5th- generation fighters in its inventory and operates no 3rd-generation aircraft. Although the United States retains the advantage in the total force, the question is how many fighters it can get forward, how quickly, and whether those timelines meet the operational needs. In terms of quality, the United States has an advantage, but would need to deploy many aircraft to defend its partners in the region. For example, in a Taiwan scenario, the combination of a lack of appropriate bases in the Pacific Ocean and potential PLA anti-access strategies could force the United States to devote many more aircraft to a conflict than the PLA would need to deploy.

Previous analysis of a Taiwan conflict estimated that if China devotes 1,000 fighters to a Taiwan campaign, the United States would need an equivalent number of aircraft based as far from Taiwan as Okinawa (770 km). However, because there are only a few bases on Okinawa and few equivalent options, it is likely that the United States would have many of its aircraft operating from farther distances. If it were to instead operate its fighters from Guam (2,870 km from Taipei), the number necessary would more than double (and would depend on a large and capable fleet of air-to-air tankers).²³⁴

The ability of the United States to maintain air superiority also is closely tied to the outcome of both anti-access and area denial competitions. In airspace close to its shores, China could use long-range SAMs to hold at risk U.S. aircraft seeking to gain air superiority. The area denial threats will force the USAF to operate from farther away from China, while the anti-access threats may drive up the number of aircraft needed for this mission.

²³³ Michael J. Lostumbo, David R. Frelinger, James Williams, and Barry Wilson, *Air Defense Options for Taiwan: An Assessment of Relative Costs and Operational Benefits*, Santa Monica, Calif.: RAND Corporation, RR-1051-OSD, 2016, Appendix B.

²³⁴ See Heginbotham et al., 2015, pp. 75–86, which calculates that 994 aircraft based at Okinawa and 2,153 aircraft based at Guam would be needed.

Counter Space and C2

Information collection, analysis, and dissemination has been an area of strength for the U.S. military as compared with potential adversaries. This allows the U.S. military to effectively command and control joint and coalition forces to unify efforts and respond dynamically to battlefield changes. It also allows command concepts that feature centralized control but distributed execution, meaning that commanders at every level are given leeway to take initiatives in their own area, but higher-level commanders seek to unify efforts. The system works best when commanders at each level retain access to communication links so that battlefield changes and force levels are quickly sent up the chain, while orders to achieve unity of effort are sent down the chain and forward units can coordinate with each other. Fully leveraging these advantages and implementing these command concepts relies on many technologies, capabilities, and organizational constructs. In this section, we focus on the contribution and potential vulnerabilities of the space systems in a conflict with China.

The U.S. military relies on many types of satellites with many capabilities. Satellite positions can be tracked, which is very helpful to those who want to attack or disrupt them. Disruptions can be carried out in many ways, including by attacks by anti-satellite weapons (ASATs), jamming, or blinding. The PLA has demonstrated all of these capabilities. China began ASAT tests in 2005 and demonstrated that it could hit a satellite in orbit when it destroyed one of its own satellites in 2007. This action was heavily criticized because of the large amount of space debris it created. China subsequently demonstrated several other strike capabilities that could target satellites in higher orbits. China also is reported to have launched satellites capable of destroying other satellites, including the Aolong 1.²³⁵ The PLA also could use lasers to dazzle satellite sensors or jammers to degrade space-based radars.

The implications of these counter-space capabilities are difficult to judge. First, the degree to which space warfare will become a feature of a future conflict is uncertain. Both the United States and China rely on satellites for military operations. Fear of losing one's own space capabilities is a possible deterrent to destructive attacks in space. In addition, if the attacks create space debris, they could interfere with the commercial use of space by all nations. Although these factors might inhibit space attacks, warfare is not often singular in its restraints. Jamming and lasers could be used to achieve temporary disruptions, in some cases without permanently destroying the satellite or its sensors, but those jammers and lasers are subject to attack.

Second, if U.S. satellites face disruptions, it will be difficult to identify the consequences in advance. Even if a satellite were destroyed, there may be other workarounds that could be implemented to compensate. The overall redundancy of the system is unknown. Communication and/or sensor degradation may be localized to a small area or to a much larger one, depending on the system. Whatever the exact consequences, the potential for loss of communications and sensors is real and plans need to be in place for satellites to degrade gracefully, reconstitute, and

²³⁵ Harsh Vasani, "How China Is Weaponizing Outer Space," *The Diplomat*, January 19, 2017.

operate in the meantime. U.S. forces should aim to operate in ways that do not require the same communications and sensor inputs desired in a fully operational system.

Enduring U.S. Advantages

Many of the capabilities discussed in the previous section can be considered to be U.S. advantages that are no longer contested. U.S. submarine operations remain an advantage that the PLA has yet to counter, although DoD (and NATO) have voiced concern about the threat of adversary submarines, which have historically been easier to detect than those of the United States.²³⁶

In a conflict with China, attack submarines would operate both in the open ocean and close to China's shores, which introduces several considerations. The U.S. attack submarines operating close to China will have more difficulties conducting their ASW and anti-surface warfare (ASuW) missions because of Chinese airborne ASW assets and choke-point monitoring.

ASW aircraft, using acoustic sensors dropped into the ocean, are an important tool to surveil a much larger section of ocean than could be done from a ship. The PLA would find it difficult to operate these aircraft reliably very far from its shores, but in the waters close to its shores will enjoy protection provided by land-based SAMs and fighter aircraft. This may not deter U.S. submarines from operating close to China, but it could raise the risk of detection. More importantly, it also could change the way the submarines operate to lower those detection risks.

Choke points have long been recognized as geographic features that constrain naval operations and therefore are a focus of naval combat forces. They alter naval operations and potential combat in many ways. For our purposes, a choke point allows adversaries to concentrate resources to detect submarines. It offers a higher potential payoff for a given investment and so allows combatants to contemplate fielding capabilities that would not be feasible in the open ocean. Both the United States and China have the potential to install submarine detection systems at choke points exiting China's close seas that lie between the Philippines and Vietnam, the Philippines and Taiwan, Taiwan and Japan, and Japan and South Korea. These four choke points could be instrumented to detect submarine transit.

The United States has a slight advantage in this regard in that the countries involved are more likely to give permissive access to the United States than to China. Nevertheless, China could theoretically design systems that did not require support from these countries.²³⁷ Such a system may not afford China direct targeting solutions against U.S. submarines, but it might cue their ASW assets and give them a better chance of a detection. Even if it did not result in losses to U.S. submarines, it might benefit China by either constraining submarine operations to limit

²³⁶ Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2018*, Washington, D.C., May 16, 2018; and Megan Eckstein, "Adm. Foggo Warns of Russian Submarines Challenging U.S. Defenses," USNI News, October 3, 2018b.

²³⁷ See Owen R. Cote, Jr., "Assessing the Undersea Balance Between the U.S. and China," MIT Security Studies Program Working Paper, February 2011.

exposure to detection, or, if accurate enough, the information regarding the number of U.S. submarines in the protected zone would provide China with some important operational insights.

Submarines can be used to attack surface ships using torpedoes or anti-ship cruise missiles and to strike land targets with SLCMs. They also can emplace or remove sea mines. The United States also has demonstrated a capability to use a submarine to strike aircraft.²³⁸

In sum, submarines are likely to remain an important component of U.S. combat power in the Indo-Pacific because of their flexibility and survivability. Still, some unique features of operating close to China could increase the risks to U.S. submarines.

Potential Conflicts with China and Implications for the United States, Allies, and Partners

To begin, it is important to establish the U.S. defense commitments made to its Asian allies and partners, as shown in Table 5.3, as well as the defense spending of those nations.

²³⁸ “USN Demonstrates SM-6 Asuw Capability Giving the Fleet a New Offensive Weapon,” *Jane’s*, March 10, 2016.

Table 5.3. U.S. Defense Relationships with Selected Asian Partners

Country	U.S. Commitment	2017 Defense Budget/Active Force	U.S. Forces	U.S. Military Cooperations
Japan	1960 Treaty of Mutual Cooperation and Security to “meet the common danger”	\$46.8 billion/247,150	39,950 troops	High degree
Republic of Korea	1953 Mutual Defense Treaty to “meet common danger”	\$38.9 billion/625,000	28,500 troops	High degree
Australia	1951 ANZUS Treaty (originally included New Zealand but now bilateral) to “meet common danger”	\$25.2 billion/57,800	1250 troops	High degree
Philippines	1951 Mutual Defense Treaty to “meet common danger” (does not apply to Scarborough Shoal)	\$2.75 billion/125,000	100 troops	2014 Enhanced Defense Cooperation Agreement
Thailand	154 Manila Pact to “meet common danger”	\$6.7 billion/360,850	300 troops	U.S. military assistance
Taiwan	1979 Taiwan Relations Act to meet threats of “grave concern”	\$10.6 billion/215,000	-	Average U.S. arms sales of \$1billion
Indonesia	None	\$7.3 billion/395,500	-	2010 Defense Framework Agreement
Vietnam	None	\$4.3 billion (2017 est)/482,000	Visits to Cam Ranh Bay	Limited U.S. military assistance
Singapore	None/UK Five-Power Agreement	\$10.2 billion (2017)/72,500	220 troops	Training, logistics
New Zealand	None/ANZUS Treaty suspended in 1985/declared non-NATO ally	\$2.53 billion/9,000	.	2012 Washington Declaration
Malaysia	None/UK Five-Power Agreement	\$3.9 billion/109,000	-	Limited

SOURCES: IISS, 2018; and Hans Binnendijk, *Friends, Foes, and Future Directions: U.S. Partnerships in a Turbulent World: Strategic Rethink*, Santa Monica, Calif.: RAND Corporation, RR-1210-RC, 2016, pp. 108–109.

NOTES: “U.S. Forces” refers to forces stationed in country. Row 5 date is “1954 Manila Pact.” U.S. sales to Taiwan were \$1.83 billion in 2015, \$1.42 billion in 2017, and \$330 million in 2018 as of this writing. (See “U.S. Plans to Sell Taiwan About \$1.42 Billion in Arms Could Test China Ties,” CNBC Asia-Pacific News, June 29, 2017; “U.S. Approval of \$330 Million Military Sale to Taiwan Draws China’s Ire,” Reuters World News, September 24, 2018.)

Next, we compare the military forces of China and of several U.S. allies and partners that might operate in the disputed areas described earlier. Table 5.4 shows some of the most relevant forces, along with U.S. force requirements estimated for contingencies involving these nations (which we will describe more completely later).

Table 5.4. Comparative Chinese, Japanese, Philippine, and Taiwanese Forces and Alternative U.S. Force Requirements

	China	Japan	Philippines	Taiwan	US Force Reqs
Forcible Entry Units	33 Bdes	2 Bde	4 Bde/2 regt	-	5MEU +SOF
Armor/Infantry Maneuver Bde	32/59	6/28	/33	4/9	/3
Survivable ISR Orbits	-	-	-		10
Anti-ship Missile Units/Lchrs	528 Lchrs	88 Lchrs	-	1 bn	
Air Defense Launchers (med/long)	414/192	163/120	-	600/24	
Fighters (land/sea)	1625/283	347	-	415	600/192
Bombers	189		-	-	84
ASW Aircraft	7	75	-	-	
C/STOL Carriers	1/4	/3	-		5/5
Surface Combatants	196	50	-	26	25
Submarines	53	19	-	4	24+2

SOURCE: Data are from IISS, 2017, and Ochmanek et al., 2017.

NOTES: Reqs = requirements. Bde = brigade. Lchrs = launchers. C/STOL = conventional/short takeoff and landing. Regt = regiment. Bn = battalion. SOF = Special Operations Forces.

China has 33 brigades capable of forcible entry, including 15 special operations brigades, two air assault brigades, seven airborne corps brigades, six amphibious brigades, and three marine brigades. Once these forces establish a beach- or airhead, they can be reinforced by some of the 32 armored and 59 infantry-based brigades. Their landings would be shielded by some of the 528 anti-ship launchers, 192 long-range air defense systems, 1,908 fighters (both land- and sea-based), 189 bombers, 201 warships (including some capable of carrying aircraft), and 53 submarines counted among China's forces. Most likely, China would use a small percentage of these forces in a conflict with one of its neighbors, but it is instructive to assess the total forces available.

To deter against this formidable military, China's neighbors rely on distance and the inherent difficulty of amphibious and airborne operations in addition to their own military forces. Japan maintains six armored brigades and 28 infantry brigades and two airborne/air-mobile brigades. These are supported by 88 anti-ship missile launchers, 163 medium-range and 120 long-range SAM launchers, 347 fighter aircraft, 53 surface vessels (including three helicopter carriers), and 19 attack submarines. The Philippines has a much smaller force, principally relying on a total of 33 infantry brigades and another 6 brigade equivalents of marines and special operations forces.

Taiwan has four armored and nine infantry brigades, one anti-ship missile battalion, 600 medium-range and 24 long-range SAMs, 415 fighters, 26 surface combatants, and four submarines.

For the purpose of this analysis, we include a recent estimate of the U.S. forces needed to defeat a major Chinese assault against one of these nations.²³⁹ This estimate includes marine, special operations forces, and infantry brigades to aid in the ground defense; 792 fighters; 84 bombers; five aircraft carriers and five large-deck amphibious vessels (as part of the marine contingent); associated surface combatants to provide air defense, ASW, and ASuW as part of the five carrier strike groups; 24 attack submarines; and two *Ohio*-class submarines converted to fire cruise missiles.

Senkakus

On the Senkakus, neither Japan nor China has established a sustained military presence on any of the disputed land forms, but they both monitor the area with air and maritime forces. It is very hard to establish survivable positions on small land formations and, if ground forces were to “dig in,” they would need pre-positioned stocks of supplies and secure lines of communication to be sustainable for long periods. If either side was willing to go to war or enforce an extended blockade, forces occupying the islands could be attacked directly or their supplies interdicted. This military vulnerability would have to be weighed against a potential strategic advantage of extending a network of land-based, long-range air defense, anti-ship, and artillery rockets onto the larger islands. Given that the mutual risks of escalation likely exceed the military benefits, a crisis or conflict involving only the areas of dispute would likely be fairly short and contained. However, most conflicts start with the protagonists thinking it will end quickly and with acceptable losses. Often, they are unpleasantly surprised.

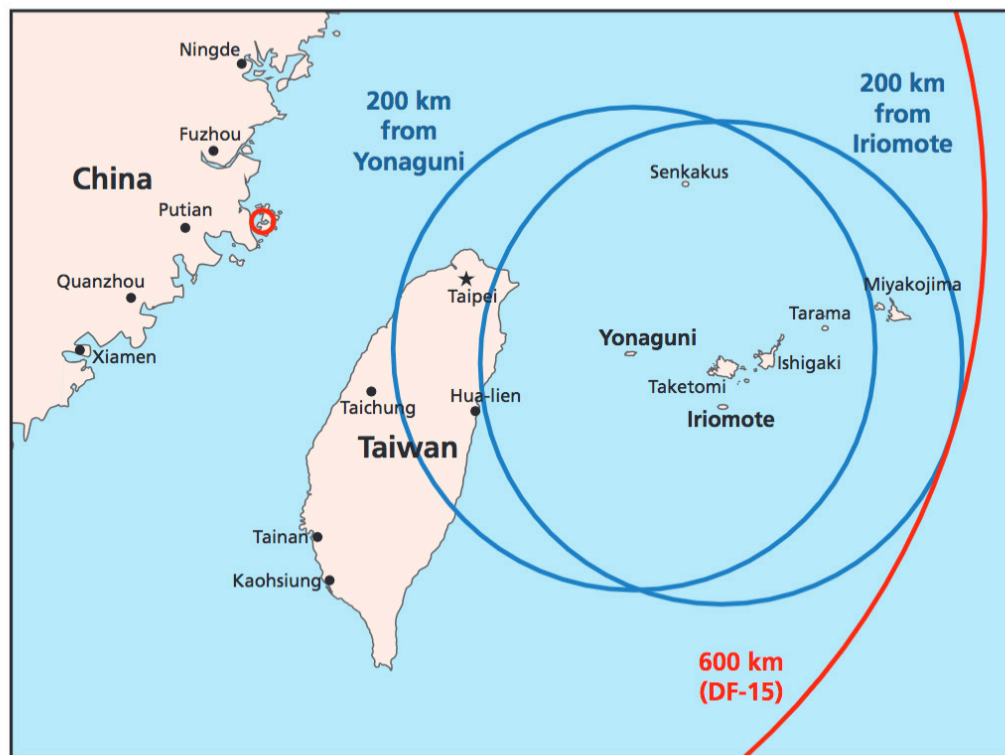
The United States has forces stationed in Okinawa, near the disputed Senkakus. The United States would likely be supportive of Japan in such a conflict, but Japan may be fully capable of handling the situation with its own forces. In that case, the U.S. forces may not be asked to play a major role. If asked to play a major role, the United States has a CSG permanently stationed in Japan and a host of other relevant ISR and strike capabilities.

One concept for Japan to defend the Senkakus is illustrated in Figure 5.1.²⁴⁰ The latest Japanese Type 12 anti-ship cruise missiles have ranges of 200 km, enough to reach the Senkakus from other Japanese islands in the Ryukyu chain. If they were employed with *ATACMS*-class surface-to-surface missiles (which Japan does not currently possess), Japanese forces would be able to both bombard any Chinese soldiers occupying the Senkakus and attack any ships attempting to supply them.

²³⁹ See Ochmanek et al., 2017.

²⁴⁰ See Bonds et al., 2017.

Figure 5.1. Coverage of Japanese and Chinese Missile Systems over Southern Ryukyus



RAND RR1820-6.3

SOURCE: Timothy M. Bonds, Joel B. Predd, Timothy R. Heath, Michael S. Chase, Michael Johnson, Michael J. Lostumbo, James Bonomo, Muharrem Mane, and Paul S. Steinberg, *What Role Can Land-Based Multi-Domain Anti-Access/Area Denial Forces Play in Deterring or Defeating Aggression?* Santa Monica, Calif.: RAND Corporation, RR-1820-A, 2017, p. 83.

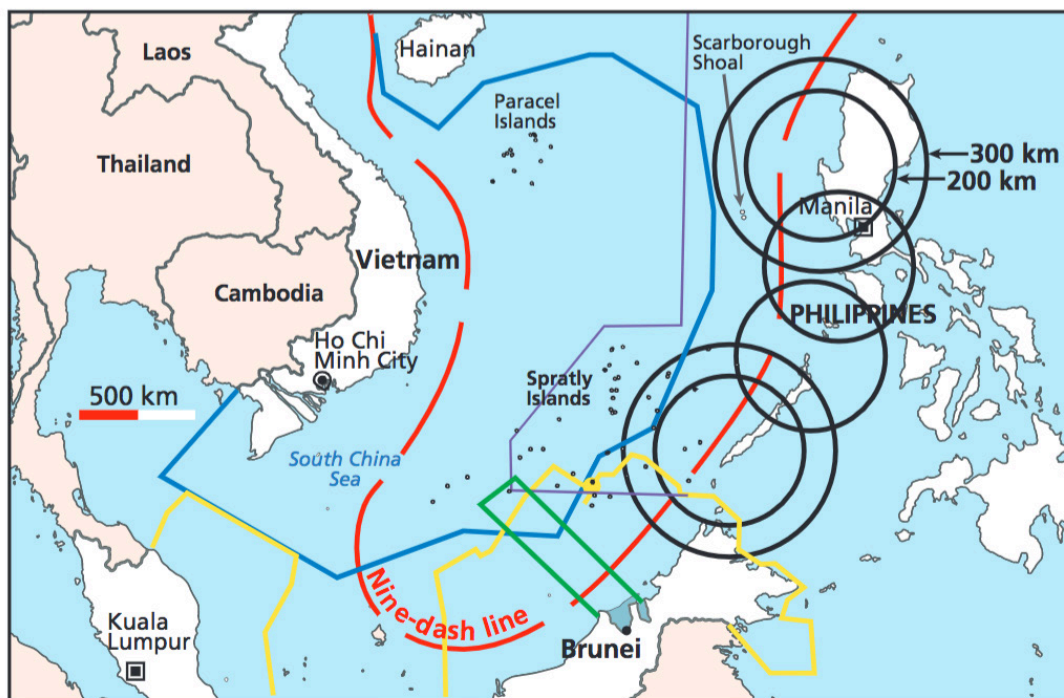
NOTES: Blue circles denote the range of Japanese Type 12 anti-ship cruise missiles. The red line denotes the range of China's DF-11 and DF-15 missiles.

On the other hand, the Ryukyu islands of Yonaguni, Iriomote, and Ishigaki also are in range of the longer-range versions of China's DF-11 surface-to-surface and DF-15 anti-ship missiles. In theory, China could therefore use the same strategy against these Japanese islands. In practice, this might not work well: Iriomote has an area of nearly 300 square kilometers and is both forested and mountainous. Japanese forces have ample room to disperse into hidden and hardened locations which, as Hezbollah demonstrated in Southern Lebanon, can survive against a determined and sophisticated adversary employing massive fires. More importantly these islands are part of Japan's homeland and are populated with Japanese citizens. A bombardment of them would be a serious escalation of the conflict, in addition to having dubious military effectiveness. There is a danger, though, that once a conflict began, the difficulties of holding disputed territories would push combatants to expand the conflict to each other's homelands. This would probably take the form of some maritime or air harassment of approaches to adversary shores. It could escalate further to attacks against land bases and ports supporting operations in disputed areas.

South China Sea

The South China Sea has become more contentious in recent years. The PRC, which claims large parts of the South China Sea, is now taking steps to tighten its grasp and defend those claims. The competing claims in this area are shown in Figure 5.2. China is in the midst of what appears to be a multifaceted, multiyear effort to establish facts on the ground in the South China Sea. This involves increasing the size of outcroppings and then building infrastructure to make them more habitable and functional. The most elaborate of these efforts have included construction of airfields, radars, and the placement of aircraft and defensive systems. These efforts have been coupled with increased maritime patrols by the PLAN, Chinese coast guard, and increased fishing by Chinese boats.

Figure 5.2. Disputed Areas in the South China Sea and Ranges of Long-Range SAM, Rocket Artillery, and Anti-Ship Missile Systems from the Philippines



RAND RR1820-6.6

SOURCE: Bonds et al., 2017, p. 87.

NOTES: The nine-dash line marks China's claims of historic rights in the South China Sea. The colored lines denote the claims of various countries. Blue is for Vietnam, green is for Brunei, yellow is for Malaysia, red is for China, and purple is for the Philippines.

South China Sea disputes are focused on three separate areas: the Paracel Islands (China, Taiwan, Vietnam); Scarborough Shoal (China, Taiwan, Philippines); and Spratly Islands (China, Taiwan, and Vietnam claim all Spratly Islands, while Brunei, Malaysia, and the Philippines

claim some of them).²⁴¹ The distances are different in these three cases. The Paracels are fairly close to both Vietnam and China (only about 200 miles from Hainan Island and 225 from Vietnam). Scarborough Shoal is 500 miles from Hainan, but only 200 miles from the Philippines. The Spratlys are at least 600 miles from Hainan (they span a wider geographic area than the other two areas) and 200 to 600 miles from Vietnam. China's efforts are clearly designed to establish defensible positions in these disputed islands and China has major advantages compared with their neighbors in the quantity of their relevant capabilities and, in many cases, in the quality as well.

The nations of this region do not handle these conflicts in the same way. A survey of country actions found that China, more than any other, used military and economic coercion in disputes in the South China Sea. The Philippines was well behind but was the next most likely country to use military or economic action. Vietnam and Malaysia were much less confrontational.²⁴² The only area where China did not lead was in legal action, suggesting that China does not feel that it has the law on its side.

If the Philippines were determined—or forced by an attack—to defend their claims on the Second Thomas Shoal or other reefs in the South China Sea, it is geographically well placed to do so. As shown in Figure 5.2, many of these areas are within 300 km of the Philippine home islands. That means that Philippine forces, if armed with *ATACMS*-class surface-to-surface missiles, could destroy any forces lodged on reefs or artificial islands within range of their home islands. Although an adversary force on a reef would be easy to target and would have to receive resupply under fire, Philippine forces on islands such as Palawan would have thousands of square kilometers in which to operate and many alternative supply routes.

The United States has its own interests to protect in these maritime disputes. Current U.S. policy “takes no position on competing sovereignty claims to land features in the region [However, t]he United States has a strong interest in ensuring all claimants seek to address and resolve their issues peacefully, without conflict or coercion.”²⁴³ More fundamentally, the United States asserts freedom of navigation rights that permit its military craft to operate in international waters and airspace. As mentioned earlier, the NSS states: “We will reinforce our commitment to freedom of the seas and the peaceful resolution of territorial and maritime disputes in accordance with international law.”²⁴⁴

²⁴¹ DoD, *The Asia-Pacific Maritime Security Strategy: Achieving U.S. National Security Objectives in a Changing Environment*, Washington, D.C., August 21, 2015b, p. 6.

²⁴² Patrick McNulty and Christopher Yung, *China's Tailored Coercion and Its Rivals' Actions and Responses: What the Numbers Tell Us*, Washington, D.C.: Center for a New American Security, January 26, 2015.

²⁴³ DoD, 2015b, p. 6.

²⁴⁴ The White House, 2017c, p. 47.

China threatens these rights by asserting its control of areas around disputed islands as protected. This is a legal question, but more than that, it is a question of security.²⁴⁵ China does not want U.S. military intelligence assets collecting information from areas close to its shores, but also has demanded sovereign status over vast areas deemed to be international waters and airspace. For its part, the United States wants to be neither surprised by the PLA, nor prevented from freedom of navigation operations in this or other corners of the world held to be open to all nations.

Taiwan

U.S. diplomacy has played a vital role in influencing both Taiwan and China. American statements and actions have helped shape Taiwan's perceived room for maneuver and Taipei's judgments about how far to risk pushing Beijing, and have often reassured China and reinforced the imperative that reunification with Taiwan be peaceful. Future U.S. diplomatic engagement with China may again succeed in dampening tensions and reducing the risk of war.

At the same time, the United States and Taiwan have spent decades deterring Chinese military action against Taiwan. Among the military scenarios that have been considered over the years are Chinese seizure of offshore islands (some of which, such as Quemoy and Matsu, lie within 20 km of the mainland), a Chinese blockade of Taiwan, and an amphibious invasion. The first two scenarios would aim to force Taiwan to make some sort of political concessions in favor of the mainland. Invasion would represent a decision by Beijing to settle the issue by force.

However, an invasion would be politically and militarily risky for China, which should expect considerable losses if the United States chooses to defend Taiwan. Taiwan should therefore presume that an invasion would begin with very aggressive attacks in an attempt to knock the Taiwanese military out of the fight before U.S. help could arrive. Equally heavy attacks should be anticipated on any reinforcements supporting Taiwan. U.S. forces should expect China to use every means available to deny them entry into theater or any sanctuary from PLA attacks.

The United States is not obligated to come to Taiwan's defense in any of these scenarios but has preserved a policy of strategic ambiguity. Unlike the American commitment to NATO, no President has gone to Taipei, unambiguously extended America's deterrent, accepted the risk of escalation in using military force, or directed regular military exercises to support mutual defense. Yet the United States has significant economic and political interests in Taiwan. A PLA takeover of Taiwan would also raise strategic concerns: It would extend the range of Chinese air defense and anti-ship missile capability over important sea lanes, enhance Beijing's power to use coercion or outright military force against other nations, and enhance the credibility of the Chinese in making good on such a threat.

²⁴⁵ See Alan M. Wachman, "Playing by or Playing with the Rules of UNCLOS?" in Peter Dutton, ed., *Military Activities in the EEZ: A U.S.-China Dialogue on Security and International Law in the Maritime Commons*, Newport, R.I.: U.S. Naval War College, December 2010.

The 2017 NSS reflects the Trump administration's determination to "maintain our strong ties with Taiwan in accordance with our 'One China' policy, including our commitments under the Taiwan Relations Act to provide for Taiwan's legitimate defense needs and deter coercion."²⁴⁶ "Providing for Taiwan's legitimate defense needs" implies military sales and training more than it promises to rush U.S. forces to Taiwan's defense. Still, it should raise some concern among China's leadership that, were Taiwan determined to resist an invasion and were it able to hold out long enough, the United States might come to its defense.

A key question, then, is what Taiwan would be willing to do to defend itself for long enough for the hoped-for U.S. help to arrive. If Taiwan builds a military force able to hold and isolate an initial Chinese assault—which is likely to be a combination of amphibious, airborne, and special operations forces backed by airpower and rocket artillery—then the attacking forces would be left exposed on beaches and at drop zones and vulnerable to strikes by Taiwanese ground and U.S. air forces. Follow-on Chinese forces would be left on ships that would be vulnerable to attack by U.S. submarines and bombers armed with anti-ship missiles (such as the LRASM currently under development).

One concept would be for Taiwan to purchase anti-ship missile systems in quantities and with sufficient range to imperil a Chinese invasion fleet, and with enough mobility to disperse, hide, and survive.²⁴⁷ Taiwan's HF-3 anti-ship missile is reported to have a range of between 130 and 300 km. Even at the lower-range estimate, the HF-3 could cover the entire coastline of Taiwan from just two positions, as shown in Figure 5.3.

With 300-km range missiles, such as an anti-ship version of the ATACMs, the whole of the island and its sea approaches from China could be covered from any one location, meaning that a force of 100 launchers (as an example) could be distributed throughout Taiwan's central mountains and still hit Chinese transports operating anywhere in the Taiwan Straits. However, Taiwan is reported to have just one battalion of coastal artillery, which is far too small to ensure that enough systems can hide, fight, and defeat a Chinese invasion.

If Taiwan did decide to make a determined effort to defend itself, it should buy at least two other types of missile systems. The first type would increase its SAM force.²⁴⁸ Larger, more capable systems like the Patriot can defend larger areas. Advanced versions, like the PAC-2 GEM or PAC-3 can provide some defense against ballistic missiles. However, as mentioned earlier, China can land hundreds of ballistic missiles on Taiwan, and it might require more than one Patriot launch to ensure interception of each incoming missile. Worse, the trailer-mounted version of the Patriot is not designed to be moved rapidly, making it vulnerable to ballistic missile strikes itself.

²⁴⁶ The White House, 2017c, p. 47.

²⁴⁷ For a more complete description of these concepts, please see Michael J. Lostumbo, "A New Taiwan Strategy to Adapt to PLA Precision Strike Capabilities," in Roger Cliff, Phillip C. Saunders, and Scott W. Harold, eds., *New Opportunities and Challenges for Taiwan's Security*, Santa Monica, Calif.: RAND Corporation, CF-279-OSD, 2011, pp. 127–136; and Bonds et al., 2017.

²⁴⁸ See Lostumbo et al., 2016.

Figure 5.3. Ranges and Coverage of Taiwanese and Chinese Missile Systems



SOURCE: Bonds et al., 2017, p. 89.

For these reasons, it might be more cost-effective for Taiwan to focus its air defense investments in many smaller, cheaper, mobile point defenses. Near-term candidates might include the French Crotales, the Norwegian NASAMS-II, or the U.S. IFPC-2 with a multimission launcher able to employ a variety of missiles, such as the AIM-9 or AIM-120. A force of 100 such launchers could eviscerate a massed Chinese strike package attacking Taiwanese bases or deployed forces, while a few launchers acting independently could pick off small groups of Chinese fighters providing direct support to ground forces.

Taiwan also should buy more MRLs, such as the M270, which is able to operate off road and fire such weapons as the GMLRS rocket. The current GMLRS has a range of about 80 km, while improved versions are planned to have a range of about 140 km. Again, a force of 100 such vehicles—each able to fire six to 12 GMLRS rockets with cluster munitions in each salvo—could provide fire support to Taiwan’s beach defenders from many hidden locations. An invading ground force would face an enormous challenge in trying to establish a beachhead against Taiwanese armor while withstanding a withering barrage from such an artillery force.

For its part, the United States should continue to invest in the forces and capabilities that could best assist Taiwan in destroying invading forces once they are halted and isolated. These

capabilities would likely include attack submarines and bombers with long-range anti-ship and land-attack cruise missiles.

Implications for U.S. Defense Planning and Requirements

This analysis of potential military requirements in Asia in relation to potential Chinese aggression suggests that the current U.S. posture remains sufficient for deterrence in many scenarios and that the United States enjoys competitive advantages stemming from regional concerns about Chinese intentions. Long-term trends in regional military predominance are worrisome, however, as is the potential Taiwan invasion scenario. Therefore, this analysis identifies the following gaps—both current and prospective—in U.S. capabilities to link means and ends in this theater:

- survivable basing throughout the region, especially for air assets
- capabilities to penetrate an increasingly contested environment, including systems capable of striking from distance
- Blue A2/AD systems designed to deny aggressive action in the East and South China Seas, including land-based anti-ship missiles, rocket artillery, advanced air defense systems, and air assets capable of striking into the theater from a safe distance
- nonmilitary and/or paramilitary maritime assets capable of conducting presence and support missions in operations below the threshold of major conflict without escalating to the employment of conventional naval vessels.

In addition, our analysis highlights gaps in partner and allied capabilities. The leading example is the lack of sufficient systems to defend Taiwan against direct assault, including anti-ship and air-to-air missiles.

Closing the Gaps: Geopolitical and Conceptual Initiatives and Innovations

The following geopolitical and conceptual initiatives could help bolster the U.S. deterrent posture in the theater:

- continued and expanded defense cooperation arrangements with regional partners, including Japan, Vietnam, Singapore, Australia, New Zealand, and Indonesia, as well as India as a component of the current emphasis on an “Indo-Pacific” region. These arrangements will be limited by the political constraints and strategic appetites of the partners. The goal should be to both enhance partner capabilities and broadcast a multilateral deterrence message.
- reaffirmation of the U.S. view that the Senkaku Islands fall within the U.S.-Japan security agreement, including some U.S. freedom of navigation operations in the area to make clear the U.S. commitment to stand by Japan in its defense
- encouraging other countries, such as U.S. NATO allies, to show consistent support for international law and opposition to aggression in the region through such measures as freedom of navigation operations and defense partnerships with regional states, including India, Japan, and South Korea

- development of “Blue A2/AD” defensive concepts of operations designed to deter Chinese aggression under the constraints of China’s growing regional military power and templates that can be shared with partners to help them better arm themselves
- rhetorical, financial, and diplomatic support to regional initiatives to resolve territorial disputes and create norms of conduct, such as the ongoing effort to solidify an ASEAN Code of Conduct
- diplomatic overtures to China to reassure it about U.S. intentions with regard to Taiwan as a leading tension-reduction mechanism and to develop conflict-resolution channels and procedures.

Closing the Gaps: Top-Priority Short-Term Investments

To strengthen U.S. conventional deterrent capabilities in this theater, this analysis suggests the following top-priority investments:

- Ensure sufficient stocks of preferred munitions for any potential contingency.
- Develop and deploy additional long-range strike systems capable of penetrating a denied environment.
- Invest in base resiliency, especially for USAF regional facilities.

6. The Greater Middle East and Afghanistan

In Europe and East Asia, the United States is committed to the defense of allies and the deterrence of powerful nuclear-armed opponents. In contrast, the greater Middle East is the scene of multiple active conflicts involving American forces in advisory and direct-action roles in Iraq, Syria, Yemen, Somalia, Libya, and Afghanistan against radical jihadist insurgencies and terrorist groups. In this region, the NDS focuses on defeating terrorists, building coalitions, and preventing domination by hostile powers. This strategy involves a mix of near-term actions against terrorist groups as well as longer-term actions to help friendly governments resist VEOs and the malign influences of Iran. The goal of this chapter is to summarize the situation in the greater Middle East and describe the resourcing demands that the continuing conflicts will place on the U.S. military.

The United States has no treaty allies in the region other than Turkey, but successive administrations have pledged to help defend Israel and several of the Gulf monarchies.²⁴⁹ The United States faces two types of adversary in this region. First are the violent jihadist groups including ISIS, al Qaeda, local affiliates thereof, and the Afghan Taliban. The other sort of adversary is Iran—a state, but one that projects its power throughout the region via support for mostly militant groups.

The Trump administration is revising its strategies for countering the jihadist groups in Iraq, Syria, and Afghanistan. As mentioned earlier in this report, President Trump has ordered U.S. forces to leave Syria and has ordered cuts in U.S. troops deployed to Afghanistan. The American withdrawal from the Joint Comprehensive Plan of Action (JCPOA) limiting Iran’s nuclear program raises regional nuclear proliferation from a distant to a more proximate danger while increasing the risk of conflict with Iran and its several proxies in the region.

²⁴⁹ For example, the 2018 NDS states that

[w]e will foster a stable and secure Middle East that denies safe havens for terrorists, is not dominated by any power hostile to the United States, and that contributes to stable global energy markets and secure trade routes. We will develop enduring coalitions to consolidate gains we have made in Afghanistan, Iraq, Syria, and elsewhere, to support the lasting defeat of terrorists as we sever their sources of strength and counterbalance Iran (DoD, 2018a, p. 9).

Similarly, on May 14, 2015, at Camp David, President Obama said

I am reaffirming our ironclad commitment to the security of our Gulf partners. As we’ve declared in our joint statement, the United States is prepared to work jointly with [Gulf Cooperation Council (GCC)] member states to deter and confront an external threat to any GCC state’s territorial integrity that is inconsistent with the U.N. Charter. In the event of such aggression, or the threat of such aggression, the United States stands ready to work with our GCC partners to urgently determine what actions may be appropriate, using the means at our collective disposal, including the potential use of military force, for the defense of our GCC partners (White House of President Barack Obama, Office of the Press Secretary, “Remarks by President Obama in Press Conference After GCC Summit,” May 14, 2015).

Countering the Islamic State and Other Jihadist Movements

The crux of U.S. strategy to counter ISIS is embodied in the phrase “by, with, and through.” The phrase refers to efforts by the U.S. military to operate via local partners who are relied upon to wage ground operations against ISIS in Iraq and Syria. The United States enables those operations by providing air power, ISR, training, and equipment.

A major benefit of this approach is that it decreases the physical risk to U.S. forces, which mitigates the loss of American public support for the operation. A second benefit is that it denies ISIS the propaganda value of rallying Iraqis, Syrians, and foreign fighters to resist Western occupation. This approach also invests the United States’ local partners in the outcomes of such campaigns and the work needed to secure and administer the reconquered territory and liberated population. The main drawback of the approach is that, by relying on local units to prosecute ground operations—including subnational forces that feature Kurdish and Shi‘a militias—the strategy could sow the seeds for an eventual resurgence of violent extremism among Sunni Arabs, who may come to view the “liberation forces” as an instrument of Kurdish ambitions, or, in Iraq’s case, the heavy hand of a Shi‘a-dominated central government.

That risk should not be taken lightly, but thus far, the strategy has produced results, as measured by changes in territorial control. At the time of this writing, ISIS is reported to have lost its hold on all urban territory in Syria and Iraq.²⁵⁰ The group’s decline is particularly stark when contrasted with events of the summer of 2014, when ISIS threatened Baghdad and effectively controlled the Euphrates River Valley from the outskirts of the Iraqi capital all the way to the Turkish border, as well as a large stretch of the Tigris ranging from the “Sunni triangle” of Iraq up through the country’s second largest city of Mosul.

Because the United States is leveraging local actors to field the ground operations, this rollback has been achieved despite the deployment of only a small contingent of U.S. forces.²⁵¹ The United States has committed about 6,500 troops encompassing the roughly 5,000 American troops providing training and support (e.g., ISR, fires) to Iraqi units; the roughly 1,000 mainly American special operations forces who provide training, equipment, and enablers to the Syrian Democratic Forces (SDF); and the roughly 500 American forces operating at the forward command center based in Kuwait. Together, these 6,500 troops make up the Combined Joint Task Force-Operation Inherent Resolve (CJTF-OIR).²⁵²

This light footprint has kept American fatalities to a minimum and imposed low costs relative to the United States’ deployments in Afghanistan (2001–present) and Iraq (2003–2011). RAND analysis has estimated the future costs of sustaining the military deployment in Iraq and Syria at

²⁵⁰ Zeina Karam, “ISIS Loses All Territory, But Its Shadowy Leader Still at Large,” Associated Press, March 23, 2019.

²⁵¹ In addition to U.S. forces, the counter-ISIS (C-ISIS) coalition partners contribute roughly 4,000 troops, which include flying sorties.

²⁵² Seth G. Jones, James Dobbins, Daniel Byman, Christopher S. Chivvis, Ben Connable, Jeffrey Martini, Eric Robinson, and Nathan Chandler, *Rolling Back the Islamic State*, Santa Monica, Calif.: RAND Corporation, RR-1912-SRF, 2017, p. 220.

\$4–16 billion annually, depending on how quickly those force levels are drawn down and whether future ISIS activities cause the United States to pause or reverse its withdrawal.²⁵³ This range is consistent with U.S. military estimates, which peg the costs of current operations at roughly \$5 billion annually.²⁵⁴ Added to the costs of sustaining military operations would be grants of U.S. military equipment via foreign military financing as well as humanitarian and stabilization assistance.²⁵⁵

Once it is confirmed that all remaining ISIS redoubts in Iraq have been reduced, the United States may wish to retain a significant advisory presence in Iraq to prevent the reemergence of extremist groups, continue to strengthen the Iraqi security forces, counterbalance Iranian influence, and provide weight to American efforts to foster cooperation between Iraq’s Sunni, Shi’a and Kurdish populations.

In the case of Syria, the critical variable in determining the scope of the future U.S. mission is American involvement in the defense and stabilization of liberated territory. In Iraq, the United States has the benefit of working through a national government—imperfect as it may be—while the UN oversees the stabilization mission in that country. In Syria, the United States lacks a central government partner and the UN is unable to provide more than sporadic humanitarian assistance because of Syrian regime restrictions on the use of its border crossings and UN concerns that aid will be directed disproportionately to regime supporters.²⁵⁶

The United States has more flexibility than the UN in the mode of delivering assistance. Washington’s only requirement is securing transit routes, which could be accomplished without the approval and coordination of the Syrian regime. However, because large-scale assistance is only cost-effective when there is overland access, and because Turkey opposes stabilization assistance to areas liberated at the hands of Kurdish forces, the United States would need to secure access to Syrian territory from the Kurdistan Regional Government (KRG). The logical access point and the one relied on to date is the Fishkhabour crossing. Rivalries between Erbil and the main Syrian Kurdish party, the PYD, inject political sensitivities into this access, but so far, the KRG has allowed flows of assistance to reach liberated territory in northeastern Syria.

How small the American mission in Eastern Syria becomes—including U.S. help in the establishment of local governance and internal security forces—remains the subject of intense

²⁵³ Jones et al., 2017, p. 220. The size of the deployments costed were 2,500 and 10,000 U.S. soldiers in Iraq, and 200 and 2,000 U.S. soldiers in Syria. The annual cost per soldier was estimated at \$1,544,000 in Iraq and \$300,000 in Syria.

²⁵⁴ This figure is derived from the U.S. military’s estimate that the average cost of the deployments from August 2014 through June 2017 was \$13.6 million per day. Extrapolating that figure over an entire year yields \$4.96 billion in annual cost. See DoD, “Operation Inherent Resolve: Targeted Operations to Defeat ISIS,” webpage, undated.

²⁵⁵ Foreign military financing costs for Iraq could be large. In FY 2016, Iraq received a smaller allocation (\$250 million) than it has in prior years, but it also received a loan of \$2.7 billion. See U.S. Department of State, “U.S. Security Cooperation with Iraq,” fact sheet, Washington, D.C., March 22, 2017.

²⁵⁶ On the lack of a government partner, Special Envoy McGurk remarked that Syria “is far more difficult than Iraq. We don’t have a government to work with and we will never work with the Assad regime” (DoD, “Department of Defense Press Briefing by Secretary Mattis, General Dunford, and Special Envoy McGurk on the Campaign to Defeat ISIS in the Pentagon Press Briefing Room,” transcript, Washington, D.C., May 19, 2017).

policy debate. In addition to ordering the withdrawal of U.S. combat forces, President Trump has disavowed nation-building, and the administration avoids the term *reconstruction*, opting for the ambiguity and palatability of *humanitarian plus*. U.S. officials also have stressed that coalition partners are expected to contribute the equivalent of 75 cents for every U.S. dollar expended on stabilization.²⁵⁷

On the other hand, Syria will be an important test case for blunting Iranian influence—a stated priority of the administration. Among those keen to prevent the expansion of Iranian influence in Syria, there is anxiety that Tehran is attempting to establish a “land bridge” stretching from Iran to the Mediterranean, crossing the Iraqi, Syrian, and Lebanese territory that lies in between.²⁵⁸ The premise is not that the land bridge would be embodied in physical infrastructure, but rather that Iranian-aligned groups would effectively control transit routes through regime-controlled areas in Syria, Shi’a majority areas of Iraq, Iraqi Kurdish terrain, and the *badia* (desert area) of Eastern Syria.

Some analysts are skeptical of the purported land bridge threat. Some reject the underlying logic because Iranian air routes to Damascus are seen as a safer method of transporting material support and technology to Iranian partners, rather than exposing convoys to strikes from the air.²⁵⁹ Others doubt Iran’s ability to control transit routes in areas that crisscross territory previously held by Sunni insurgents, including ISIS. Notwithstanding these arguments, the specter of expanded Iranian influence has generated a debate in Washington about the scope of U.S. involvement in the stabilization of Eastern Syria to deny this outcome.

Setting aside the consideration of Iranian influence, Eastern Syria also will be a focal point of efforts to avoid the reemergence of ISIS. The fear is that, should liberated territory be neglected, it would fan Sunni-Arab resentment and potentially push communities back into the arms of ISIS or a future ISIS successor organization. The question then becomes whether the United States would help secure and stabilize this area or whether it would allow Damascus to eventually exert sovereignty over the territory and populations liberated with U.S. assistance. The current deconfliction lines Washington has negotiated with Moscow seem to suggest a division of responsibility in which the United States would operate as the main stabilization patron from Manbij to Raqqa and then from Mayadin to Albu Kamel, exempting only Deir Ezzour city in what would otherwise be a Syrian Euphrates under U.S. watch and as a recipient of U.S.-directed support.²⁶⁰ The durability of this arrangement is threatened by both the Assad regime’s and Turkey’s opposition to lasting autonomy for America’s Kurdish-dominated partners in Eastern Syria.

²⁵⁷ DoD, 2017.

²⁵⁸ Ehud Yaari, “Iran’s Ambitions in the Levant,” *Foreign Affairs*, May 1, 2017; Andrew Tabler, “The Scramble for Eastern Syria,” *Foreign Affairs*, June 3, 2017.

²⁵⁹ Ilan Goldenberg and Nicholas A. Heras, “Is America Getting Sucked into More War in Syria?” *The Atlantic*, June 9, 2017.

²⁶⁰ David Ignatius, “Working with Russia Might Be the Best Path to Peace in Syria,” *Washington Post*, July 4, 2017.

Indications from Tabqa—a medium-sized town bordering Raqqa that American officials often describe as a dry run for stabilizing ISIS’s self-declared capital of Raqqa—are that while the United States will support stabilization of liberated territory, the effort could be more limited than previous forays into nation-building.²⁶¹ The U.S. government has sent only a small number of civilian advisers forward and presumably U.S. Army civil-affairs units will no longer be considered for deployment to the area. Because Tabqa abuts Raqqa and contains critical infrastructure—namely, a hydroelectric dam that provides power—the small scale of American involvement is a strong indication of the limited nature envisaged for U.S. stabilization in Eastern Syria.

The United States also is engaged in advise-and-assist and some direct-action campaigns against ISIS and al Qaeda elements in Yemen, Libya, Somalia, Nigeria, and its Lake Chad Basin neighbors. In this regard, the United States will have the largest potential requirements in pressuring ISIS affiliates in Libya, where militants have taken advantage of the security vacuum that has followed the country’s failed political transition. In addition to Libya, there will be a longer-term threat in Egypt’s Sinai, northeast Nigeria in the Lake Chad Basin, and smaller-scale threats in Yemen and Somalia. However, current trend lines suggest that these threats can be managed with more-limited U.S. involvement than that involved in prosecuting Operation Inherent Resolve in Iraq and Syria. RAND analysis that projected the costs of sustaining C-ISIS operations in Iraq and Syria at \$4 to 16 billion annually suggests that the costs of military operations to pressure ISIS in Libya, Nigeria, and Egypt are estimated only to be from tens of millions to just under 1 billion dollars.

Iran

Iran has enormous influence in Iraq, Syria, Lebanon, and, to a somewhat lesser degree, Afghanistan. Shi’a militias trained, armed, and financed by Iran are numerous in Iraq, Syria, Lebanon, and Yemen, while the Syrian Assad regime is heavily dependent on Iran for its very survival. Moreover, Hezbollah, Iran’s most powerful nonstate proxy, has gained substantial battlefield experience in the Syrian Civil War and currently resembles a well-armed conventional army more than a local militia. This has raised fears within the Saudi, Bahraini, and United Arab Emirates (UAE) monarchies about Iran’s growing regional influence and its eventual ability to undermine their own regimes.

President Trump’s decision to withdraw from the JCPOA moves the reanimation of Iran’s nuclear weapons program from a distant to a more imminent danger. Without much international support, the U.S. effort to employ economic sanctions to force Iran back to the bargaining table seems unlikely to succeed. Such efforts may be sufficient, however, to persuade Iran to also abandon the agreement, despite European, Chinese, and Russian efforts to dissuade it from doing so. In this case, a military confrontation becomes more likely as Iran resumes activities forbidden

²⁶¹ Michael R. Gordon and Eric Schmitt, “U.S. Sends Civilian Team to Syria to Help the Displaced Return Home,” *New York Times*, June 22, 2017.

by the JCPOA, e.g., exceeding limits on uranium enrichment, and the United States looks for ways to stop those activities.

Iran has developed its conventional military capabilities, although they remain modest for a country of its size and level of development. The Iranian conventional navy, air force, and army may appear to be large on paper, but they field very old equipment and weapons platforms, some dating to the 1960s. A greater threat may be Iran's asymmetric capabilities, including its proxies and its large number of small fast-attack boats. Iran possesses the ability to disrupt shipping in the Persian Gulf for a time, but only at the cost of strangling its own exports. Similarly, Iran's large ballistic missile inventory is a threat to Iran's neighbors and U.S. and allied forces throughout the Middle East, but the U.S. advanced anti-ballistic missile systems can help counter Iran's still relatively unsophisticated missiles. However, it would be unwise to underestimate the costs and difficulties of an actual war with Iran. Iran has become a major land power through the cultivation of tens of thousands of armed militants spread across the region. Tehran also has mastered the art of political warfare, including religious and ideological influence operations. As a result, Iran's local proxies could impose substantial costs on the United States in Iraq, Syria, and Afghanistan.

Iran does not have the means to control the Persian Gulf or to capture and hold GCC territory. The large U.S. military presence in the region serves as a powerful deterrent to any Iranian territorial ambitions. The Saudi and Emirati air and naval forces are technologically superior to their antiquated Iranian counterparts. General David Petraeus has gone so far as to suggest that the UAE air force could take out the entire Iranian Air Force.²⁶² However, Iran is aware of this disparity and has designed an asymmetric strategy to counter U.S. and allied conventional superiority. The Revolutionary Guard commands thousands of fast-attack boats that could swarm U.S. ships and overwhelm their defensive capabilities. Iran also possesses anti-ship cruise missiles, naval mines, and attack drones that can target U.S. and allied militaries in the Persian Gulf. Even a temporary disruption of shipping through the Strait of Hormuz could have large and widespread economic consequences.

In the event of a direct military conflict, Iran would use its asymmetric strategy to inflict significant costs on the United States and might even emerge as the perceived "winner," much as Hezbollah was not able to defeat Israeli forces in 2006 but was widely viewed in the region as having "won" by its ability to inflict significant casualties on Israeli forces while launching thousands of rockets into Israeli territory.²⁶³ Iran may pursue a similar strategy because even a minor armed action in the Persian Gulf could disrupt shipping and raise oil prices, risking the global economy and creating pressure on Washington to settle any conflict on Iran's terms. However, Iran is likely to attempt to "close" the Strait of Hormuz only in the direst circumstances. Much like its Gulf Arab rivals, Iran is heavily dependent on the Persian Gulf for oil exports, as is Iraq, a state with which Iran has close and friendly relations.

²⁶² Josh Rogin, "Petraeus: The UAE's Air Force Could Take Out Iran's," *Foreign Policy*, December 17, 2009.

²⁶³ "Nasrallah Wins the War," *The Economist*, August 17, 2006.

The 2003 U.S. invasion of Iraq removed the biggest bulwark to Iranian expansionism in the Arab world. Saddam Hussein fought a bloody war with Iran from 1980 to 1988 and brutally crushed attempts by Iraqi Shi'a—some of whom were loyal to Iran—to gain power and overthrow his regime. The empowerment of Iraqi Shi'a parties also has widened Iran's ability to maneuver in the territory of its western neighbor. To be sure, not all Iraqi Shi'a are loyal to Iran; the Sadrist movement, for example, has forged a more independent and nationalist identity independent of the Islamic Republic. However, some of the major Iraqi Shi'a parties and militias are very close to Iran. The rise of ISIS also boosted Iran's ability to increase the number of militiamen under its authority. The majority of Iraqi Shi'a militias fall under the umbrella of the Popular Mobilization Units (PMUs), which have been named as an official force of the Iraqi central government. The PMUs have conducted many of the major operations against ISIS and are poised to become a major force in Iraq after ISIS falls. Iran has sent thousands of third-country militiamen to fight in Syria on behalf of the Syrian regime.

The Assad regime has become very dependent on pro-Iranian Shi'a militias to quell the Syrian opposition. It is difficult to obtain an accurate estimate for the number of Iraqi militiamen fighting in Syria, but they appear to be in the thousands. Furthermore, Iran has recruited thousands of Afghan and Pakistani Shi'a. Combined with actual Iranian and Hezbollah forces, Iran probably commands the loyalty of 20,000 to 30,000 fighters in Syria. Of special concern is the presence of such forces near the Israeli border; although they are relatively poorly equipped, Iran could provide more-sophisticated weapons to these groups in the future. Hezbollah is already armed with increasingly accurate long-range missiles that cover all of Israeli territory. The Lebanese Shi'a group also wields advanced anti-tank guided missiles in addition to anti-ship cruise missiles. In the event of an armed conflict with Israel, Iran's local client could launch thousands of missiles against Israel.²⁶⁴

Pro-Iranian militias also can be used in any conflict with Saudi Arabia. These militias do not possess air or naval assets, but they are a growing presence on the Saudi-Iraq-Kuwaiti border areas.²⁶⁵ Riyadh's conventional forces are more advanced than the militias, but they may face asymmetric hit-and-run attacks that could tie down Saudi troops and inflict significant casualties on them. After all, Saudi forces are much better trained and equipped than Iranian-backed Houthi militiamen in Yemen, yet they have been unable to achieve Riyadh's goal of recapturing Sanaa and installing a loyal government in the Houthis' place. The Houthis have employed similarly low-technology weapons possessed by other pro-Iranian militias, including Scud-type missiles, low-cost drones, and small arms.²⁶⁶ None of the pro-Iranian militias could defeat the Saudi/GCC militaries in the classical sense, but they could be a powerful instrument in Iran's attempts to inflict pain on Riyadh. Iran and Hezbollah also are reported to have developed secret cells

²⁶⁴ Nour Samaha, "Hezbollah's Death Valley," *Foreign Policy*, March 3, 2016.

²⁶⁵ "Shia Iraqi Militia Promises to Spread Fight to Saudi Arabia," *Middle East Monitor*, June 5, 2017.

²⁶⁶ Christopher Diamond, "Report: Houthi Rebels Flying Iranian-Made 'Kamikaze Drones' into Surveillance Drones," *Defense News*, March 28, 2017.

throughout the GCC which could be mobilized to conduct sabotage operations in the event of an armed conflict.²⁶⁷

Iran does not want and is unlikely to initiate a direct military conflict with the United States, or with any of its neighbors. Conflict with Saudi Arabia might occur were the Saudis to attack Qatar and the latter call on Iran for help, but this seems unlikely. Conflict with the United States might occur as a result of some maritime clash in the Gulf, but this would likely be quickly deescalated. The greatest risk of a direct conflict would flow from the collapse of the JCPOA. Should U.S. sanctions not force Iran back into negotiation and should Iran resume aspects of its nuclear program, U.S. authorities might consider employing military force to destroy Iranian nuclear sites and prevent new ones from being built or old ones rebuilt. Such a military campaign might come to resemble the Northern and Southern Watch air operations over Iraq from 1991 to 2003, which involved enforcing no-fly zones over portions of the country and intermittently bombing suspected sites.

In the case of Iran, however, the U.S. task would be much more demanding, as the operation would likely not enjoy international sanction and might not garner the support of U.S. allies in Europe or East Asia. Iran's air defenses are much more capable than the Iraqi SAMs that threatened U.S. pilots in 1990s Iraq. Furthermore, Iran would retain access to Russian and other non-Western arms suppliers. The United States would likely not be able to use air bases in Turkey and would be limited to Gulf State facilities and sea basing, assuming that Saudi Arabia, Qatar, Bahrain, and the UAE would be ready to risk Iranian counterstrikes. American forces and civilian personnel in Iraq, Syria, Afghanistan, and the Gulf would be vulnerable to threats from Iranian proxies. Enforcing the no-fly zone over a nearly defenseless Iraq was estimated to cost \$12 billion over ten years. Imposing such a regime on Iran would likely be much costlier.²⁶⁸

The United States also could find itself drawn into a conflict between Israel and Iran, perhaps provoked by Iranian or Iranian-inspired attacks on Israel from Syria or Lebanon, or by an Israeli strike on renewed Iranian nuclear activity. In the absence of a direct U.S.-Iranian conflict, their competition throughout the region will continue to be conducted principally through local surrogates, with the Iranians supporting Shi'a militias and exercising strong influence over governments in Lebanon, Syria, and Iraq, and with the United States backing Israel and the Gulf States competing for influence in Beirut and Baghdad and perhaps supporting an anti-Iranian blocking force in southeastern Syria to interdict land communications between Iran and the Mediterranean. The scale and cost of these measures, but not those of a direct U.S.-Iran conflict, have been subsumed in the high-end estimates given in this section. We provide more detail later for the C-ISIS campaign.

²⁶⁷ Matthew Levitt, "Hezbollah's Pivot Toward the Gulf," *CTC Sentinel*, Vol. 9, No. 8, August 2016.

²⁶⁸ John A. Tirpak, "Legacy of the Air Blockades," *Air Force Magazine*, February 2003.

Afghanistan

The U.S. war in Afghanistan has begun its 18th year. It was preceded by 12 years of civil war, and before that by the Soviet Union's war. The country itself has been in more or less continuous conflict since 1979. There is no end in sight.

Over the past several years, the Afghan armed forces have been gradually ceding ground to the Taliban. The Afghan government still holds all the major population centers, but the Taliban is increasing its control over the countryside. This result was foreseen by the Obama administration when the President announced in May 2014 that American troops would be out of the country by the end of his term. The expectation was that once U.S. and European forces departed, the Kabul government's control over the country would gradually erode. Although Obama and his team never acknowledged it, they were looking for what Henry Kissinger described, apropos of Vietnam, as "a decent interval" between the U.S. withdrawal and the local regime's collapse.

Only a couple of weeks after Obama announced this intended withdrawal, ISIS burst out of war-torn Syria and marched to the very gates of Baghdad. This development underscored the dangers of abandoning weak but friendly regimes to overthrow by violent extremist movements. The Iraq experience may have caused Obama to think better of his Afghan withdrawal decision and instead leave 8,500 American troops in Afghanistan, thus handing the conflict and the decision of whether to stay on to his successor.²⁶⁹

The Taliban, al Qaeda, and ISIS are waiting in the wings. A further erosion of control by the central government does not necessarily mean an eventual Taliban victory. It does mean that the country would gradually fall back into a multisided conflict of the sort that followed the Soviet withdrawal in 1989. The result would provide further scope both for al Qaeda, which retains links to the Taliban, and ISIS, which has established its own affiliate in Afghanistan.

On assuming office, the Trump administration faced the choice of losing quickly by withdrawing from Afghanistan; losing slowly by staying at current, clearly inadequate levels of commitment; or not losing by increasing that commitment enough to establish and maintain a stalemate on the battlefield. After several months of review and debate, President Trump reluctantly chose the last of these options. Acknowledging that he had originally preferred withdrawal in an address to the nation on August 21, 2017, he came to realize that "a hasty withdrawal would create a vacuum that terrorists, including ISIS and al Qaeda, would instantly fill, just as happened before September 11th."²⁷⁰

Instead, the President offered a "plan for victory." He defined victory as "obliterating ISIS, crushing al Qaeda, preventing the Taliban from taking over Afghanistan, and stopping mass

²⁶⁹ James F. Dobbins, *Foreign Service: Five Decades on the Frontlines of American Diplomacy*, Washington, D.C.: Brookings Institution Press, 2017, pp. 288–289.

²⁷⁰ The White House, "Remarks by President Trump on the Strategy in Afghanistan and South Asia," Arlington, Va.: Fort Myer, August 21, 2017b.

terror attacks against America before they emerge.”²⁷¹ This formula is significant. Obliterating ISIS and crushing al Qaeda have potential end points, while preventing a Taliban takeover does not.

In the same address, President Trump referred only very briefly to the possibility of a “political settlement that includes elements of the Taliban,” but added that, “nobody knows if or when that will ever happen.”²⁷² The following day, then-Secretary of State Rex Tillerson elaborated on this aspect of the President’s strategy, stating, “I think the President was clear this entire effort was intended to put pressure on the Taliban, to have the Taliban understand that you will not win a battlefield victory. We may not win one, but neither will you.”²⁷³ This is a pretty explicit acknowledgment that the administration’s intent is to fight the war in Afghanistan to an enduring stalemate in order to eventually force a negotiated settlement.

In March 2018, Afghan President Ashraf Ghani laid out a fairly detailed peace plan that was backed by the United States and other NATO allies. With Afghan presidential elections looming in 2019, few expect an early move to negotiations, but the absence of an immediate Taliban rejection has been encouraging. Eventual success will require unequivocal U.S. support and active participation.

Trump’s approach to Afghanistan is distinguished from his predecessor’s in several respects. First, he has delegated the decision on precise troop levels to the Secretary of Defense. Second, he set no deadlines or target dates for drawdowns or withdrawal. Third, he reduced constraints on the activities of U.S. forces, and finally, he promised less White House micromanagement on those activities. As a result, the U.S. force level in Afghanistan seemed likely to expand from the Obama ceiling of 8,500 to around 15,000. However, on December 24, 2018, President Trump was reported to have ordered a partial withdrawal of U.S. forces from Afghanistan.²⁷⁴ The next week, a White House official denied that report.²⁷⁵ Since then, with the U.S. Senate voting to oppose the withdrawal of U.S. forces from Afghanistan, it is difficult to predict what, exactly, the U.S. position will be going forward.²⁷⁶ How quickly a withdrawal might be conducted, and what effect this has on the war effort against the Taliban, remains to be seen.

President Trump insisted that his administration would not engage in nation-building, but he also promised that the United States would continue to provide military and economic aid to the Afghan government. He said, “we will not dictate to the Afghan people how to live, or how to govern their own complex society” but he also insisted that the American people “expect to see

²⁷¹ The White House, 2017b.

²⁷² The White House, 2017b.

²⁷³ Alex Ward, “Tillerson Says the Taliban Won’t Win in Afghanistan—and Neither Will the U.S.,” Vox, August 22, 2017.

²⁷⁴ Lederman and De Luce, 2018.

²⁷⁵ Shannon Pettypiece and Bill Faries, “Trump Hasn’t Ordered Afghan Troop Withdrawal, White House Says,” Bloomberg, December 28, 2018.

²⁷⁶ Mary Clare Jalonick, “Senate Breaks with Trump on Afghanistan, Syria Withdrawal,” Associated Press, February 4, 2019.

real reforms” and implicitly conditioned continued U.S. aid on such reforms.²⁷⁷ Like George W. Bush and Obama, Trump seems more averse to the term “nation-building” than to the actual steps needed to improve the capacity of partner states to effectively secure and govern their populations.

In his August 21, 2017, address, President Trump also dealt with the regional dimensions of the Afghan conflict, taking a harsher line on Pakistan than had either Obama or George W. Bush and urging a stronger Indian role in Afghanistan. He made no mention of Russia or Iran, both of which opposed the Taliban when it was in power and have generally backed the government in Kabul since 2001, although both states have been hedging their bets of late by opening lines to the Taliban. The United States has difficult relations with Russia and no relations to speak of with Iran. Any effort to broker a peace process will make little headway against opposition from these governments.

A 2017 RAND study posited the cost of a 15,000 American troop presence at \$23 billion per year.²⁷⁸ To this must be added something in the area of \$3 billion per year in security assistance to the Afghan army and police and another \$2 billion of economic and humanitarian assistance needed to keep the Afghan government running. Assuming that the Trump administration figures come anything close to these, Afghanistan will remain the largest single U.S. military and financial commitment in the Middle East and South Asian region.

Resource Implications

Tables 6.1, 6.2, and 6.3 project the annual costs involved in a continued U.S. military and diplomatic commitment in the countries in which the United States is currently engaged in advisory and direct-action campaigns against violent jihadist groups.²⁷⁹ The higher estimates assume that the United States maintains troops in the vicinity of Syria even after the Trump-ordered pullout and keeps forces in Iraq beyond the initial defeat of ISIS in order to prevent its reemergence and counterbalance Iranian influence. The higher figure for Afghanistan is consistent with the Trump administration’s declared intentions there (and assumes no immediate withdrawal).

²⁷⁷ The White House, 2017b.

²⁷⁸ Jones et al., 2017, p. 220.

²⁷⁹ The data and calculations for Tables 6.1, 6.2, and 6.3 are derived from and explained in Appendixes A and B of Jones et al., 2017.

Table 6.1. Projected Annual Cost Estimates of U.S. Military Deployments

Country	Low		High	
	Number of U.S. troops	Cost (millions)	Number of U.S. troops	Cost (millions)
Iraq	2,500	\$3,885	10,000	\$15,540
Syria	200	\$62	2,000	\$622
Libya	50	\$16	2,000	\$622
Nigeria	50	\$16	1,000	\$311
Egypt	0	\$0	50	\$16
Afghanistan	5,000	\$7,770	15,000	\$23,310
Total	7,800	\$11,749	30,050	\$40,421

SOURCE: The data and calculations for this table are derived from and explained in Appendixes A and B of Jones et al., 2017.

The higher estimates encompass the projected costs of continuing to counter malign Iranian influence throughout the region, principally by bolstering the capacity of local partners to resist. We believe that commitment to the region at this higher level also will be adequate to deter any overt Iranian attack on neighboring states or U.S. targets in the region. We have not sought to calculate the costs of a multiyear air and naval campaign to destroy Iranian nuclear weapons–related facilities and suppress any reanimation of Iranian nuclear weapons development in the event of a breakdown of the JCPOA. In addition to the costs of conducting air operations over Iran, against opposition and into the indefinite future, and defending U.S. bases and partners in the region against Iranian retaliation, the costs cited herein for continuing the U.S. presence in Afghanistan, Iraq, and Syria could rise should Iran employ proxies to challenge those missions.

Table 6.2. Projected Annual Security Assistance Costs, as of FY 2014

Country/Region	Current (FY14) (millions)	Low (millions)	High (millions)
Iraq, Syria, and select Near East countries	\$3,597	\$2,683	\$8,949
Afghanistan, Pakistan, and select South Asian countries	\$5,139	\$1,487	\$5,783
Nigeria and select Lake Chad Basin countries	\$38	\$0.40	\$54
Libya and select Sahel/Maghreb countries	\$51	\$8	\$658
Total	\$8,825	\$4,179	\$15,444

SOURCE: The data and calculations for this table are derived from and explained in Appendixes A and B of Jones et al., 2017.

NOTE: Data may not sum exactly due to rounding.

Table 6.3. Projected Annual Economic and Humanitarian Assistance Costs, as of FY 2014

Country/Region	Current (FY14) (millions)	Low (millions)	High (millions)
Iraq, Syria, and select Near East countries	\$2,820	\$416	\$8,854
Afghanistan, Pakistan, and select South Asian countries	\$3,481	\$492	\$4,663
Nigeria and select Lake Chad Basin countries	\$901	\$129	\$1,009
Libya and select Sahel/Maghreb countries	\$541	\$139	\$2,162
Total	\$7,743	\$1,176	\$16,688

SOURCE: The data and calculations for this table are derived from and explained in Appendixes A and B of Jones et al., 2017.

7. Matching Policy to Resources

In order to defend itself and its national interests, and to maintain the trust of allies as a reliable security guarantor, the United States must match its national security policies with the resources available to support them.

In Chapter 2, we defined the United States' top priorities as countering direct and potentially immediate threats to the homeland and its citizens, including deterring nuclear war and nuclear terror. We assume that these Tier 1 priorities will always be met. The question, then, is how to best allocate the remaining forces and resources against Tier 2 and Tier 3 priorities.

We identified the Tier 2 priorities as countering severe and immediate threats to U.S. allies. The most important and urgent priority is to deter a Russian attack on the Baltics; the next-most urgent is to counter North Korean threats to South Korea and Japan or a Chinese invasion of Taiwan. As discussed earlier, these threats are highly consequential and, because the U.S. military advantage is eroding in some areas, the likelihood of an unfavorable outcome is arguably increasing. We therefore conclude that actions to lower the risks are urgently needed. The Tier 3 problems comprise long-term or chronic threats. Although these problems are not as urgent, they are still consequential to the long-term well-being of U.S. allies and thus to global security.

In this chapter, we analyze alternatives for addressing the mismatches identified in Chapters 3 through 6. First, we compare the defense pledges and policies of the Trump administration with the budgets available for the military means to meet priority challenges. We discuss the investment and funding outlook, the available forces and capabilities, and the alternatives for meeting urgent priorities with available forces. Finally, we present three alternative scenarios for how DoD might allocate its global forces to accomplish its missions.

Investment and Funding Outlook

The Trump administration has identified some investment priorities to support its stated defense policy priorities. During the 2016 presidential election campaign, the Trump campaign vowed to grow each of the services.²⁸⁰ The FY 2019 DoD budget request begins to fund this growth by adding 25,900 troops and ten combat ships and increasing the production of F-35 and F/A-18 aircraft.²⁸¹ In addition, the 2018 NDS lists modernizing key capabilities in its nuclear;

²⁸⁰ "Transcript of Donald Trump's Speech on National Security in Philadelphia," *The Hill*, September 7, 2016.

²⁸¹ Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, *Defense Budget Overview, United States Department of Defense Fiscal Year 2019 Budget Request*, Washington, D.C.: Department of Defense, February 2018a.

space and cyber; command, control, communications, computers, and ISR; missile defense; and other forces as investment priorities.²⁸²

As much as the United States might wish to address each of these problems to the maximum extent possible, future budgets are unlikely to provide sufficient funding to do so. The DoD base budget has grown from approximately \$510 billion in FY 2017 (about \$520 billion in constant FY 2018 dollars) to \$582.3 billion in FY 2018.²⁸³ This would need to grow to \$698 billion by FY 2027 (in constant FY 2018 dollars) to pay for items in the base budget today, as well as to achieve the Trump administration's goals to modernize U.S. nuclear forces and modernize and expand conventional military forces.²⁸⁴ Over the nine-year period, the cumulative difference between the FY 2018 budget and the funds needed for the Trump administration's plans would be more than \$500 billion. In addition, overseas contingency operations (OCO) were budgeted at \$65.2 billion in FY 2018 and show no definite sign of abating.

Figure 7.1 shows these projected costs, as well as the Trump administration's proposed increase in the BCA limits on discretionary defense spending.²⁸⁵ As shown in the figure, a 2-percent annual real growth in the FY 2018 budget would provide enough funds for both nuclear modernization and the modernization and expansion of conventional forces. A 3-percent annual real growth rate also would provide enough funds for OCO, so long as those costs do not rise. (In the figure, we show OCO funding continuing at the FY 2018 level, although those costs could change in future years.) As noted by then-Secretary Mattis in his April 2018 testimony to the Senate, the FY 2018 and 2019 DoD budgets represented 3.1 percent of GDP.²⁸⁶ This is much less than the 5 percent of GDP devoted to DoD during the post-Vietnam Cold War period, or the 5.7 percent spent in 1985 during the Reagan defense buildup.

The CBO estimates that, by FY 2027, modernizing U.S. nuclear forces would consume \$21 billion of any increase in DoD's base budget. In addition, any emergency funding requests—such as the \$4.7 billion requested in November 2017 for enhanced missile defense—could crowd out other investments if the need persisted for longer than the initial year. Furthermore, the Trump administration itself has recently floated the idea of ramping down the increase in defense expenditures, causing some alarm within DoD.²⁸⁷ Although it is unclear at the time of this writing whether DoD or the U.S. Office of Management and Budget (OMB) will prevail, the debate does not bode well for continuing increases in the defense budget.

²⁸² DoD, 2018a.

²⁸³ Brendan W. McGarry and Pat Towell, *FY2018 Defense Appropriations Act: An Overview*, Washington, D.C.: Congressional Research Service, April 5, 2018.

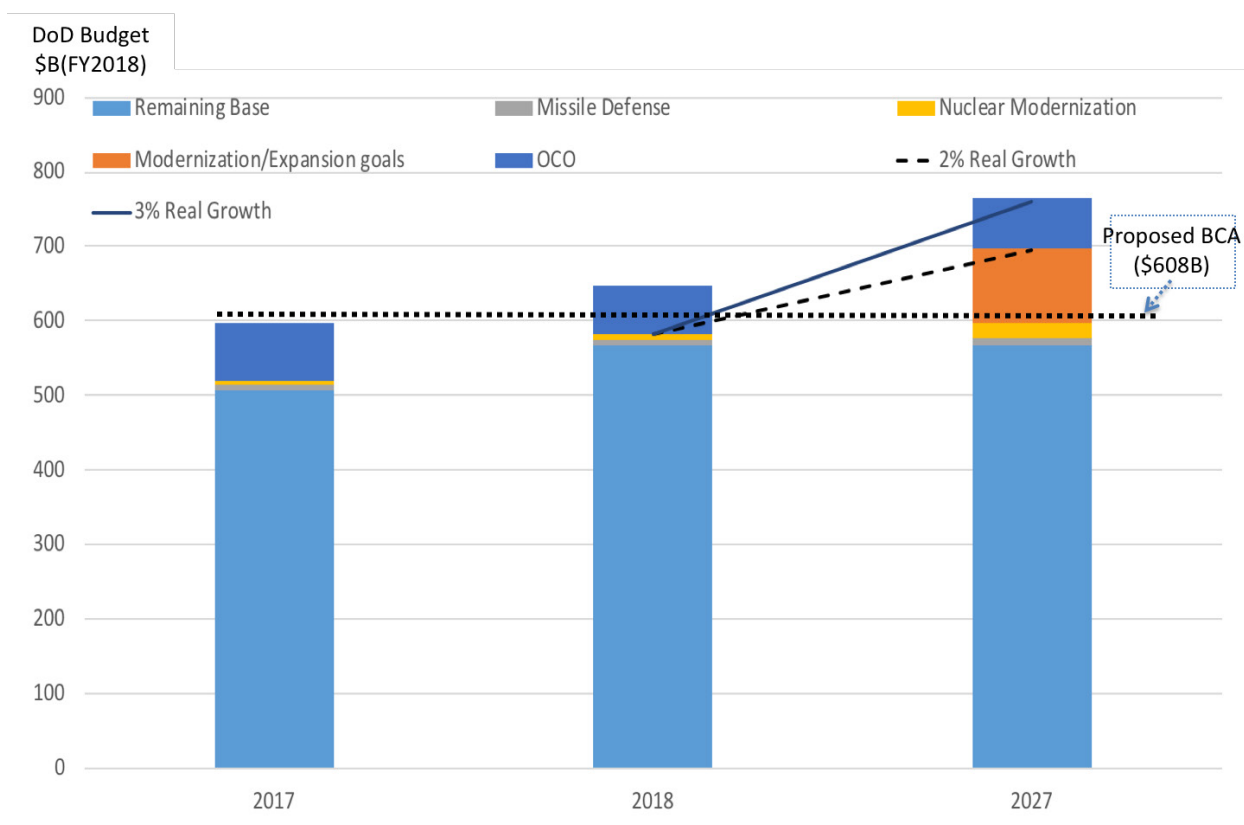
²⁸⁴ CBO, 2017c.

²⁸⁵ Williams and Towell, 2017.

²⁸⁶ U.S. Senate Armed Services Committee, 2018.

²⁸⁷ See Joe Gould, "Mattis, GOP Hawks Warn Trump Against Defense Cuts at White House Meeting," *Defense News*, December 5, 2018b.

Figure 7.1. U.S. Military Budget Versus Projected Needs, 2018–2027



SOURCES: Data are from McGarry and Towell, 2018; Congressional Budget Office, 2017c; Williams and Towell, 2017; and Congressional Budget Office, 2017a.

NOTE: \$B (FY2018) = billions in constant FY 2018 dollars.

Available Forces and Capabilities

One way to make policy and resources meet is to increase the resources expended; the other is to adjust the policy ends or to adjust the strategy for meeting them. Because of the uncertainty in future defense budgets and the likely difficulty that DoD will have in raising the base budget enough to fund the desired growth in the services, the RAND team looked at alternative strategies for countering the highest-priority threats within the existing force structure.

To begin, we assessed the forces available today and their readiness to conduct contingency operations. A particularly interesting item in the FY 2019 DoD budget request was the statement by each service regarding the readiness of their forces.²⁸⁸ Each service (except for the USAF) described the number of its major force units that would complete premier readiness exercises

²⁸⁸ Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, 2018a.

and thereby become ready for combat operations. (The USAF stated that “only 50 percent of our squadrons are ready to conduct all of the missions assigned to them.”)²⁸⁹

The Army stated that it planned to send 19 BCTs through combat training centers (CTCs) in FY 2018 and raise this to 21 BCTs in FYs 2020 to 2023. The RAND team estimated the numbers and types of active component (AC) and reserve component (RC) BCTs that could pass through the CTCs each year, as shown in Table 7.1. The CTCs include the National Training Center (NTC) at Fort Irwin, California; the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana, and the Joint Multinational Readiness Center (JMRC) at Grafenwoehr, Germany.

Table 7.1. Planned Service Readiness Throughput

	Total Forces	Units Participating in Major Readiness Training				Ready Forces Goal
		2020	2021	2022	2023	
Army BCTs (AC)	12 ABCT ¹ 12 IBCT 7 SBCT	7 ABCT 6 IBCT 3 SBCT	6 ABCT 6 IBCT 4 SBCT	7 ABCT 6 IBCT 3 SBCT	6 ABCT 6 IBCT 4 SBCT	8 ABCT 9 IBCT 4 SBCT
Army BCTs (RC)	5 ABCT 20 IBCT 2 SBCT	1 ABCT 3 IBCT 1 SBCT	1 ABCT 4 IBCT 0 SBCT	1 ABCT 3 IBCT 1 SBCT	1 ABCT 4 IBCT 0 SBCT	1.5 ABCT 7 IBCT .5 SBCT
Army BCTs (Total)		8 ABCT 9 IBCT 4 SBCT	7 ABCT 10 IBCT 4 SBCT	8 ABCT 9 IBCT 4 SBCT	7 ABCT 10 IBCT 4 SBCT	9.5 ABCT 16 IBCT 4 SBCT
MC Infantry Bns; Ftr Sqdns	23 AC Bns 6 RC Bns 16(AC)/1 (RC) Sqdns	12 AC Bns 1 RC Bn 8 Sqdns	12 AC Bns 1 RC Bn 8 Sqdns	12 AC Bns 1 RC Bn 8 Sqdns	12 AC Bns 1 RC Bn 8 Sqdns	17 Bns 13 Sqdns (if same as Army/AF)
Navy CSG/ESG; Ftr Sqdns	10CSG/9ESG 28 (AC)/ 1 (RC) Sqdns	4CSG/4ESG 14 Sqdn	4CSG/4ESG 14 Sqdn	4CSG/4ESG 14 Sqdn	4CSG/4ESG 14 Sqdn	6 (+2) CSG 4 ESG 22 Sqdns (if same as AF)
USAF Fighter Sqdns	32 Ftr Sqdn (AC) 24 Ftr Sqdn (RC)	16 Ftr Sqdn (AC) 4 Ftr Sqdn (RC)	16 Ftr Sqdn (AC) 4 Ftr Sqdn (RC)	16 Ftr Sqdn (AC) 4 Ftr Sqdn (RC)	16 Ftr Sqdn (AC) 4 Ftr Sqdn (RC)	26 Sqdns (AC) 19 Sqdns (RC) (Assuming RC and AC 80%)

SOURCE: Data are from Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, 2018a.

NOTES: MC = U.S. Marine Corps. Bns = battalions. ESG = expeditionary strike group. Ftr = fighter. Sqdns = squadrons.

¹ The Army is planning to add two more ABCTs.

The Army currently has ten AC ABCTs but is planning to create two more by converting them from IBCTs. We have used the planned force structure in this analysis for a total Army AC

²⁸⁹ U.S. Department of the Air Force, *USAF Posture Statement Fiscal Year 2018: Department of the Air Force Presentation to the Committee on Appropriations Subcommittee on Defense*, Washington, D.C., June 21, 2017.

of 12 ABCTs, 12 IBCTs, and seven Stryker BCTs (SBCTs); and an RC of five ABCTs, 20 IBCTs, and two SBCTs.²⁹⁰

The Army's goal is to have two-thirds of its Regular BCTs and one-third of its Guard BCTs equipped with the personnel, equipment, and training needed to make them ready for combat in the 2021 to 2022 time frame.²⁹¹ If the Army assigned 16 of its annual CTC slots to AC units, it could cycle through all 31 active BCTs in two years (with active ABCTs cycling slightly faster than other units). That would leave five slots for RC brigades each year. These BCTs could cycle through the CTCs every five or six years and then be available for overseas deployment. That means that some of the AC units may have had their last CTC rotation between 13 and 18 months prior to deployment, and some of the RC units up to two years prior to deployment, but it may be possible to keep their combat skills sharp with continuing training at their home stations. We use that Army goal in the analysis that follows.

Similarly, we assessed how many units the Marine Corps could pass through its readiness training exercises. In FY 2018, the Marines had capacity for ten infantry battalions in integrated training exercises and two infantry battalions in mountain exercises; this number rose to ten and six, respectively, in FY 2019 (and presumably beyond). In addition to other units mentioned, the Marines plan 30 integrated training exercises for their aviation squadrons (including both fixed- and rotary-wing). Therefore, we assume that the Marines could put 12 AC battalions and one RC infantry battalion through some form of a major readiness exercise and prepare half of their 16 fighter squadrons for carrier operations each year.²⁹² (The increased capacity in 2019 might allow for a quicker call-up of reserves, or a regular infantry battalion might go twice in a given two-year period.) We assume that the Marines could meet the Army goal of maintaining two-thirds of its regular and one-third of its reserve ground units ready for combat and meet the Air Force goal of preparing 80 percent of its fighter squadrons for combat from land bases (as described in more detail below). This would yield a total of 17 infantry battalions and 13 fighter squadrons ready for combat at any given time, while providing eight of the fighter squadrons with the additional training needed to operate from aircraft carriers.

The Navy plans to send four of 11 carriers with four air wings, 27 of 96 surface combat ships, 13 of 31 principal amphibious ships, and 35 of its 68 submarines through integrated exercises each year. We assume that this could provide four CSGs (including a carrier, three or four surface escorts, and an attack submarine) and four expeditionary strike groups (ESGs; led by a landing helicopter assault or a landing helicopter dock, with two or three other amphibious

²⁹⁰ David Vergun, "Army Readiness, Lethality Increasing Amid Troubled World, Says Chief of Staff," U.S. Army webpage, October 9, 2018b.

²⁹¹ David Vergun, "Investments in Modernization, People Increasing Readiness, Say Army Secretary, Chief of Staff," Army News Service, March 15, 2018a.

²⁹² The Marine Corps has 457 AV-8, F-18, and F-35 aircraft organized into 18 operational and three training squadrons (see IISS, 2018). However, this would average out to fewer than 22 aircraft per squadron (neglecting any of these aircraft assigned to testing duties or in maintenance). Therefore, we revised the count downward to 16 24-aircraft equivalent regular Marine Corps squadrons. We will use this 24-aircraft squadron equivalent throughout this analysis when discussing Air Force, Navy, Marine Corps, and allied fighter squadrons.

ships) with an integrated exercise each year. In addition, we assume that the U.S. Navy can have 14 24-aircraft squadron equivalents ready for carrier operations each year.²⁹³ For wartime operations, the Navy's Fleet Response Plan is designed to provide up to six CSGs within 30 days and an additional two CSGs in 90 days.²⁹⁴ As with the Marines, we assume that the USN could meet the Air Force goal of having 80 percent of its fighter squadrons ready for combat from land bases. We assume that would yield a total of 22 ready fighter squadrons, with 14 of them having the additional training needed for carrier operations.

The Air Force did not specifically state how many active or reserve squadrons would be made ready each year through major readiness exercises. However, the Air Force has recently stated that more than 75 percent of its core fighting units are combat ready today, and that it is making faster-than-expected progress toward the goal of having 80 percent of its "operational squadrons that are most relevant to a high-end fight" ready by the end of 2020, with 80 percent of all operational squadrons reaching the 80 percent level by the end of 2023 and 80 percent of all units by the end of 2024.²⁹⁵ In particular, we will assume that the Air Force can make 80 percent of its regular and reserve fighter squadrons ready in this analysis.

The data in Table 7.2 reflect the assumption that each service can mobilize its RC units one year out of every six. That is, RC units would have one year of mobilization followed by five years in a demobilized training status for a 1-to-5 mobilization ratio. This is consistent with the mobilization tempo policy employed by the U.S. Army, which was under significant stress during peak force deployments to Operation Enduring Freedom (OEF), OIF, and Operation Noble Eagle (ONE).²⁹⁶

An even higher mobilization could be employed. Title 10 of the United States Code gives the President the authority to mobilize Reserve and National Guard units under certain threat conditions or national emergencies.²⁹⁷ The U.S. Army in particular has utilized RCs to provide

²⁹³ The USN has 34 operational and three training squadrons with 722 F-18 and F-35 aircraft and another 13 operational squadrons and one training squadron with 131 F-18 Growler electronic warfare variants (see IISS, 2018). We use a figure of 28 24-aircraft equivalent USN squadrons in our analysis in order to be comparable with the larger USAF squadrons. We assume that the Navy would use a mix of all types of F-18 in these squadrons and gradually replace them with the F-35 as they come into the inventory.

²⁹⁴ U.S. Government Accountability Office, *Military Readiness: Navy's Fleet Response Plan Would Benefit from a Comprehensive Management Approach and Rigorous Testing*, Washington, D.C., GAO-06-84, November 2005; and U.S. Fleet Forces Command, "What Is the Optimized Fleet Response Plan and What Will It Accomplish?" Navy Live, U.S. Navy blog, January 15, 2014.

²⁹⁵ Secretary of the Air Force Public Affairs, "Air Force Leaders Say Increased Funding Is Improving Readiness," webpage, October 10, 2018; and Heather Wilson, "Current Readiness of the U.S. Air Force," Department of the Air Force Presentation to the Subcommittee on Readiness and Management Support, United States Senate Washington, D.C., October 10, 2018.

²⁹⁶ Jim Garamone, "DoD Clarifies Reserve-Component Mobilization Policy," American Forces Press Service, April 16, 2007; and DoD, "Managing the Reserve Components as an Operational Force," Washington, D.C., DoD Directive No. 1200.17, October 29, 2008b.

²⁹⁷ Under 10 U.S.C., Section 12304, the President may mobilize 200,000 members of the Selected Reserve and the Individual Ready Reserve for up to one year in the event of WMD or terror attack, or threatened WMD or terror attack. Under 10 U.S.C., Section 12302, the President may mobilize 1 million members of the RC for up to 24 months after declaring an emergency.

much-needed forces in past operations and has maintained an ongoing mobilization and deployment of RC forces since OIF (see Table 7.2).

Table 7.2. Historical Mobilization of National Guard and Army Reserves

Army National Guard and Army Reserve	Korean War	Vietnam War	Desert Storm	OIF/OEF/ONE (2003)	1:5 Ratio (2018)
Endstrength	833,378	650,276	741,200	562,979	543,000
Mobilized	379,100	22,786	147,000	127,000	90,700
Percentage Mobilized	45 %	4%	20%	23%	16.7%

SOURCES: U.S. Army Reserve and National Guard mobilization figures during the Korean War are from email correspondence with William M. Donnelly, U.S. Army Center for Military History, October 19, 2018; William Donnelly, *Under Army Orders: The Army National Guard During the Korean War*, College Station, Tex.: A&M University Press, 2001; William M. Donnelly, "Army National Guard: Korean War Mobilization," *Military Review*, Vol. 80, No. 1, 2000, pp. 80–84; Renee Hylton, *When Are We Going? The Army National Guard and the Korean War, 1950–1953*, Washington, D.C.: Historical Services Division, Office of Public Affairs, National Guard Bureau, 2000; and Kathryn Roe Coker, *United States Army Reserve Mobilization for the Korean Wars*, Fort Bragg: Office of the Army Reserve History, United States Army Reserve Command, 2013. Data from the Vietnam War are from "Statement of Secretary of Defense Robert S. McNamara Before the Senate Armed Services Committee on the Fiscal Year 1969–73 Defense Program and 1969 Defense Budget," Washington, D.C., 1968; and John D. Stuckey and Joseph H. Pistorius, "Mobilization for the Vietnam War: A Political and Military Catastrophe," *Parameters*, Vol. 15, No. 1, 1985, pp. 26–38. Data from ODS are from Dick Cheney, *Report of the Secretary of Defense to the President and the Congress*, Washington, D.C., February 1992. Finally, data from OIF, OEF, and ONE are from Kathleen J. Nawyn, *Department of the Army Historical Summary, Fiscal Year 2003*, Washington, D.C.: Center of Military History, United States Army, 2015.

Since World War II, the Army's RCs have been mobilized several times for wars and national emergencies, although at far less than their maximum strengths. Army National Guard and Army Reserve forces were mobilized during the Korean and Vietnam Wars; Operation Desert Shield/ODS; and contemporaneously for ONE, OEF, and OIF. As shown in Table 7.2, 45 percent of the combined Army National Guard and Army Reserve end strength were mobilized during the Korean emergency, including eight combat divisions.²⁹⁸ (Notably, two of these divisions were sent along with two regular divisions to bolster deterrence in Europe.)

²⁹⁸ Email correspondence with William M. Donnelly, U.S. Army Center for Military History, October 19, 2018; Donnelly, 2001; Donnelly, 2000, pp. 80–84; Hylton, 2000; Coker, 2013.

In 1968, 22,786 Army Guard and Reserve forces were mobilized for the Vietnam War for 24 months. This represented about 4 percent of the strength of the Army's RCs.²⁹⁹ Approximately 20 percent of Army RCs were mobilized for ODS, including units sent to the Persian Gulf, units sent to Europe to backfill Regular Army units deployed to Saudi Arabia, and soldiers mobilized in the United States to help prepare deploying forces.³⁰⁰ In 2003, 23 percent of the Army National Guard and Army Reserve were mobilized for the combination of ONE (U.S. homeland defense), OEF (Afghanistan), and OIF.³⁰¹ In its 2019 budget request, the Army stated that it had more than 90,000 RC soldiers mobilized for overseas operations and duties within the U.S. homeland.³⁰²

Stepped-up mobilization and training of National Guard and Reserve forces could help ameliorate the mismatch between goals and capabilities in times of extraordinary demand. DoD should assess the feasibility of mobilizing essentially the whole of the Army and Air Force National Guard and Reserve components as well as the Marine Corps and Navy Reserves. This assessment should ensure that sufficient institutional capacity exists to mobilize, garrison, train, and equip these troops for worldwide contingency operations.

Alternatives to Meet Tier 2 Priorities with Available Forces

The U.S. military cannot be in all places at all times. Although naval and air forces have some ability to swing between theaters, ground forces take weeks to deploy their forces and equipment by sea, as discussed in Chapter 3. Therefore, the United States must choose where to posture its forces to meet the most urgent threats that pose the greatest risks to its interests.

In the sections that follow, we suggest how the U.S. military should allocate the forces it already has to address stated U.S. priorities, based on the following three criteria:

1. importance to the United States and its interests
2. size and urgency of the gap between the capabilities required to achieve U.S. defense objectives and the actual forces ready and postured to provide them
3. a realistic ability for the United States, working with its allies and partners, to close these gaps.

Improving Air, Naval, and Ground Capabilities to Defend NATO

This analysis ranks defending U.S. NATO allies as the most important and urgent Tier 2 priority, with gaps that can be closed if the United States and its NATO allies take appropriate actions now. As we described in Chapter 3, the ability to win a war against Russia in the Baltics

²⁹⁹ "Statement of Secretary of Defense Robert S. McNamara before the Senate Armed Services Committee on the Fiscal Year 1969–73 Defense Program and 1969 Defense Budget," 1968; Stuckey and Pistorius, 1985, pp. 26–38.

³⁰⁰ Cheney, 1992.

³⁰¹ Nawyn, 2015.

³⁰² Army Financial Management & Comptroller, "Resourcing the Army—FY19 Budget Request," Stand-To, webpage, March 15, 2018.

would require a U.S. air-ground force built around eight armored brigades and 24 fighter squadrons, along with other combat and supporting units. However, the United States has only deployed one of these armored brigades and six fighter squadrons to date, leaving Europe far short of the ready forces needed to defend it. In addition, although some equipment has been prepositioned in Europe for air and ground forces, most would have to be deployed from the United States, which would likely delay reinforcements beyond the 30-day goal set by former Defense Secretary Mattis.³⁰³

In this section, we analyze this mismatch and the alternatives for remedying it. The forces made ready each year by each service, the demands of current deployments, and the forces needed to defeat a Russian attack are compared in Table 7.3.

The first two columns reflect the forces that each service would have ready at any given time (if they achieve the readiness goals described earlier), as well as the units that would be in the training pipeline for future deployments. The third column shows those force elements already committed to ongoing operations within NATO, deployed in the Korean theater (this includes U.S. Air Force squadrons in Japan), the Middle East, or committed to other places around the world. The fourth column shows remaining ready forces not already committed to an ongoing operation. The next three columns describe the forces needed to defend the NATO Baltic states against a Russian attack, the portion of those forces that still need to be deployed, and the gaps that exist between the forces needed and the ready, uncommitted forces available in the U.S. military. The final column describes potential ways to remedy these gaps.

³⁰³ Barnes, 2018.

Table 7.3. Forces Available to Defend NATO Baltic States as the Top Tier 2 Priority

	Operating Forces Available and Cumulative Commitments				Needed to Defend NATO (As Top Tier-2 Priority)			Potential Mitigations
US Forces	Ready (Goal)	Training pipeline	Committed already to Daily Ops	Remaining ready not committed	Total needed NATO	Additional needed to be Deployed	Gap in ready forces	
Army ABCT	9 ABCT	8 ABCT	1 NATO 1 RoK 1 ME	6 ABCT	8 ABCT	7 ABCT	1 ABCT	Near-Term: • Base 7 ABCT sets in Europe - \$6-\$15B • Increase ABCT cycles at NTC Long-term • Increase NATO allied ABCT contribution • Convert US IBCT to ABCT
Army S/IBCT	16 IBCT 4 SBCT	16 IBCT 5 SBCT	2 NATO 4 ME/Afg 1 Afr 1 GRF	12 S/IBCT	3 S/IBCT	1 S/IBCT	-	
USMC Inf Bn	17 Bns	12 Bns	1 Bn NATO 1 Bn ME	15 Bn	3 bn	2 bn	-	
Fighters - AF	45 Sqds	11 Sqds	6 NATO 9 Indo-Pac 3 ME/Afg	27 Sqds	20 Sqd	14 Sqd	-	
Fighters - MC/Navy	13 (MC) 22 (N)	4 (MC) 7 (N)	18 (CSG)	17 Sqds	4 (Land)	4 (Land)	-	
Naval forces	6 (+2) CSG, 4 ESG	4 CSG, 4 ESG	-	6 CSG 4 ESG	2 CSG	2 CSG	-	

SOURCE: Data are from IISS, 2018.

The U.S. Army currently has three ABCTs on rotational deployments overseas: one in Poland, one in South Korea, and a third in the Middle East. It also has eight SBCTs and IBCTs deployed in these regions, Afghanistan, Africa, or committed to the Global Response Force and thus not available for other deployments. The Marine Corps has portions of two infantry battalions deployed to Norway, the Middle East, and Afghanistan. (It has additional troops stationed on Okinawa and on patrol with ESGs, but we assume that these troops can be transported by air or their assigned ships to contingencies around the world.) The USAF has three fighter squadrons deployed in the Middle East and Afghanistan, six in Europe, and a total of nine in Japan and South Korea. The six CSGs the Navy plans to have ready within 30 days, as well as the four ESGs we estimate to be ready each year will be at sea conducting exercises, performing periodic patrols, or conducting other missions to sustain their readiness for combat.³⁰⁴ We assume that these ships can swing between theaters within a week or two. (We also assume that the United States will typically have seven-to-ten days' warning before a major war begins.)

³⁰⁴ Megan Eckstein, "CNO: 'Dynamic Force Employment' Could Allow More High-End Training for Strike Groups," USNI News, May 16, 2018a.

In the event of a war in Europe, eight U.S. Army ABCTs, three SBCTs or IBCTs, and up to three Marine infantry battalions would be required in Europe within 30 days. One ABCT, one SBCT, one IBCT, and portions of a Marine infantry battalion are there now, but the other seven ABCTs, one IBCT, and two Marine battalions would need to be deployed to theater from the United States, as shown in red in Table 7.3 under the subheading “Additional needed to be deployed.” Although the troops could be quickly airlifted to Europe, transporting their equipment could take nearly 90 days, as described in Chapter 3. This is far longer than DoD’s 30-day goal.

Some options exist to provide the equipment for the forces that would need to be deployed. In addition to the ABCT continuously deployed in Europe, the Army has an ABCT equipment set stored in the Netherlands and is in the process of sending a second ABCT equipment set to Europe.³⁰⁵ It should be possible for soldiers to fly from their bases in the United States and move with this equipment to the Baltics within 30 days, assuming that NATO nations make them a priority for road and rail transportation and transit approvals. If the Army added five more equipment sets to Europe, for a total of seven, it would be able to quickly assemble all eight of the U.S. Army ABCTs needed. (Two of these additional sets should be placed in eastern Germany or western Poland, along with the rotational ABCT to comprise, once manned, a complete armored division for the “blunt” force that will be needed as soon as the war begins.) The RAND team estimates the costs of an ABCT equipment set at \$3 billion each, requiring a total investment of \$15 billion for five new sets. However, these costs might be reduced somewhat if stateside armored units could share equipment during training.³⁰⁶ If three additional equipment sets could be spared in this way, then expenditures for new equipment could be reduced to \$6 billion.

Unfortunately, even when the Army reaches its goal of nine ABCTs ready each year (eight AC and one RC), it will be short one ready ABCT if it must continue deploying one each to Korea and Kuwait. This would leave the Army with the choice of suspending one of the ABCT rotations or deploying an ABCT that is not ready.

In the short term, it may be possible to increase CTC training events each year to a total of ten Regular and National Guard armored brigades. This would ensure that each of the first-deploying ABCTs had experienced a major readiness training event within the past year in preparation for a potential deployment. The downside is that the training tempo for AC ABCTs would increase, and their extra rotations would either reduce the CTC events available to SBCTs and IBCTs (and the new Security Force Assistance Brigades and multinational units in Europe) or require an increase in the capacity of the CTCs and more funding for exercises. In addition, the increased operational tempo might require an increase in ABCTs (such as adding the 16th and 17th ABCTs already under discussion, and perhaps even more). Therefore, an additional

³⁰⁵ Meghann Myers, “Army to Position More Armored Vehicles in Europe, Speed Upgrades to Equipment at Home,” *Army Times*, March 7, 2018.

³⁰⁶ See, for example, Cristopher G. Pernin, Edward Wu, Aaron L. Martin, Greg Midgette, and Brendan See, *Efficiencies from Applying a Rotational Equipping Strategy*, Santa Monica, Calif.: RAND Corporation, MG-1092-A, 2011.

mitigation measure might consist of converting more Regular Army infantry units to armored units.

A total of three IBCTs and three Marine battalions also are estimated to be needed, exceeding the one U.S. SBCT and one IBCT and the lone Marine battalion now in Europe. The gap of one IBCT should be relatively easy to fill with ready infantry units in the United States. Additional pre-positioned stocks would be needed to equip infantry brigades airlifted from the continental United States. The Marines already have a brigade set stored in Norway that should be able to equip an additional two infantry battalions of troops deployed by air.

As mentioned in Chapter 3, over the long term, the United States should negotiate an agreement whereby the NATO allies increase the armored forces that they provide to reduce the demands on U.S. forces to a more equitable level.

Similarly, at present, the contemplated NATO surge force would require 24 U.S. fighter squadrons, including the six already in Europe. We estimate that fourteen of the additional squadrons would have to be provided by the USAF, while four could be filled with Marine Corps fighter squadrons operating from land bases (as shown in red in Table 7.3). The USMC contribution should probably emphasize the 5th-generation F-35 now entering the forces, as well as newer F-18s. (As a comparison, the USMC contributed 130 fighter aircraft, or more than five 24-fighter squadron equivalents, to OIF.)

U.S. naval forces conducting day-to-day dynamic force employment operations should be able to swing the two U.S. CSGs needed for a European contingency to their wartime operating areas relatively quickly. These CSGs would include six squadrons of USN/Marine Corps fighters. An additional CSG might be needed to cover the Russian Pacific fleet at Vladivostok. That CSG would be shared with Indo-Pacific forces, and so would need to be ready to swing to a Russian contingency as the higher priority.

Improving Air, Naval, and Ground Capabilities to Defend South Korea

Our analysis ranked assisting South Korea in countering North Korean provocations, or finding and securing nuclear material in the event of a North Korean collapse, as the next-most important and urgent Tier 2 priority, second only to defeating a Russian attack on NATO. (Recall that the U.S. nuclear deterrent would be tasked to deter North Korean employment of nuclear weapons against the United States and its allies.) We assess the threat of attack as severe because North Korea has fired on South Korea in the past decade and because of the massive numbers of North Korea's artillery forces, their proximity to South Korean civilian populations, and the potential for an artillery strike to rapidly escalate to full-scale war.

Although the United States is improving its defenses in South Korea—including THAAD systems to help protect against ballistic missile threats—South Korea's own forces would bear most of the burden of defending against artillery attacks and other provocations. Against these threats, the United States would provide crucial capabilities, but in much smaller numbers than South Korea and significant reinforcements could take several weeks to several months to arrive from the United States.

The forces available for potential operations in Korea are shown in Table 7.4, which also includes the forces we recommend allocating for deterring Russian aggression against NATO in the column entitled “cumulative commitments.” (We assume that these forces would be “fenced” if another contingency happened first, or already deployed if a Russian contingency happened first.)

The RAND team estimates that a total of six Army ABCTs, 13 SBCTs or IBCTs, six Marine infantry battalions, and 24 fighter squadrons would be needed if the United States joined a South Korean air and ground campaign to clear the Kaesong region of long-range artillery units. That same force would be needed to find, seize, and secure loose nukes if North Korea collapsed. In addition, two CSGs and four ESGs would be needed to augment South Korean and Japanese missile defense and help evacuate military family members and other U.S. civilians on official business if the United States were compelled to evacuate noncombatants.

Unfortunately, even with higher readiness and an expanded armored force, the Army would have a cumulative shortfall of six ABCTs and two SBCTs or IBCTs, and would have to draw on units that have not had a CTC rotation for up to two years. Those units could receive priority for NTC rotations, and it might be possible for several brigades to complete refresher CTC rotations while their equipment is being transported to theater.

Several steps might address shortfalls in ground forces in the near term. First, South Korea should reverse the drawdown of its Army. As mentioned previously, the drawdown in the ROK Army from 541,000 to 387,000 regular troops saps the very forces that would be most needed if ground operations were ordered to clear artillery from Kaesong or to respond to a collapse of North Korea. To make matters worse, as mentioned in Chapter 4, South Korean reserve units receive too little annual training (three days or less) to be relied on as an operational reserve.

Second, the United States could decide not to commit maneuver forces to counter North Korean artillery and instead contribute only air- and artillery-delivered fires. This would reduce the demand for short-notice deployments of U.S. ground forces and focus them on WMD-E operations likely to have more warning time before maneuver forces would need to be deployed. (In the event that the North Korean government collapsed, it could be months before South Korean and U.S. forces moved north of the DMZ to aid suffering civilians, reduce the threat of cross-border attacks, and secure loose nukes.) The effect of such a policy, however, could be disastrous for South Korea’s ability to successfully clear the Kaesong Heights.

Table 7.4. Forces Available to Defend Korea as the Second Tier 2 Priority

US Forces	Operating Forces Available and Cumulative Commitments				Needed to Defend Korea (If Korea second Tier-2 Priority)			Potential Mitigations
	Ready (Goal)	Training pipeline	Cumulative commitments	Remaining ready not committed	Total needed Korea	Additional needed to be Deployed	Cum Gap in ready forces	
Army ABCT	9 ABCT	8 ABCT	8 NATO 1 RoK 1 ME	(Gap of 1 ready ABCT)	6 ABCT	5 ABCT	6 ABCT	Near-Term: <ul style="list-style-type: none"> • ROK reverses its Army drawdown • US does not commit to air-ground counter-artillery campaign • More ABCT tng cycles • Use more USMC Bn Long-term <ul style="list-style-type: none"> • Convert IBCTs to ABCT
Army S/IBCT	16 IBCT 4 SBCT	16 IBCT 5 SBCT	3 NATO 4 ME/Afg 1 Afr 1 GRF	11 S/IBCT	13 S/IBCT	13 S/IBCT	2 S/IBCT	
USMC Inf Bn	17 Bns	12 Bns	3 Bn NATO 1 Bn ME	13 Bn	6 Bn	6 Bn	-	
Fighters - AF	45 Sqds	11 Sqds	20 NATO 9 Indo-Pac 3 ME/Afg	13 Sqds	12 Sqd	3 Sqd	-	Near-Term: <ul style="list-style-type: none"> • Increase USAF training throughput • Substitute N,MC for AF sqds Long-term <ul style="list-style-type: none"> • Increase ROK AF contribution
Fighters - MC/Navy	13 (MC) 22 (N)	4 (MC) 7 (N)	4 (Land) NATO 18 (CSG)	13 Sqds	12 (Land)	12 (Land)	-	
Naval forces	6 (+2) CSG, 4 ESG	4 CSG, 4 ESG	2 CSG	4(+2) CSG, 4 ESG	2 CSG 4 ESG	2 CSG 4 ESG		

SOURCE: IISS, 2018.

DoD might choose to rely more heavily on the Marine Corps for ground combat forces. The Marines have more than 400 M1A1 tanks and could reorganize several brigades as armor-infantry task forces. These Marine brigades might have some deficits in combined-arms operations compared with Army ABCTs, but such an organization might be sufficient to plug gaps in Korea. Clearing the Kaesong Heights is likely to look more like the World War II battle of Okinawa than the famous VII Corps “left hook” in ODS, and seizing and securing nuclear facilities and weapons in a collapsed North Korea would emphasize overwatch, screening, and cordon-and-search tasks in which Marine and Army units have both excelled.

Similarly, DoD might employ Navy and Marine Corps fighter squadrons operating from land bases to relieve some demand on USAF fighter squadrons. If the USN and Marine Corps provided 12 of the 24 U.S. fighter squadrons, then the USAF could provide the other 12 squadrons (including the nine routinely deployed to Japan and South Korea) and still retain ten ready squadrons as a hedge against opportunistic aggression elsewhere in the world.

In the long term, South Korea could increase its fighter squadron contribution, and both South Korea and Japan should build out their missile defenses to reduce the need for the United States to deploy Aegis warships and land-based missile defenses.

Air, Naval, and Ground Capabilities to Counter China in the Indo-Pacific

Deterring a potential Chinese attack on Taiwan is the third Tier 2 priority. The United States does not recognize Taiwan as a state and has no treaty alliance with the Taipei government. The United States also has been deliberately vague about what it would do if Taiwan were attacked and has not explicitly committed to defending it. However, as discussed earlier, the 2017 NSS states that the United States will “provide for Taiwan’s legitimate defense needs and deter coercion.”³⁰⁷

The United States removed its forces from Taiwan in the late 1970’s, leaving primary responsibility for its immediate defense in Taiwan’s hands, potentially to be reinforced with whatever forces the United States could quickly deploy from regional bases. Since then, as described in Chapter 5, the number of regional bases open to U.S. forces has decreased and China’s ability to attack the remaining U.S. bases—especially Okinawa and Guam—has increased. Such threats as Chinese ballistic and cruise missiles could compel U.S. forces to aid Taiwan’s defense from a great distance with naval forces able to operate in the area and air forces flying from Hawaii or the continental United States.

Taiwan has the financial and technical capability to buy or build many of the weapons it needs to defend itself but, as pointed out in Chapter 5, its military has not kept pace with the rapid modernization of the PLA. It has spent much of its limited modernization budget on air and sea forces based within range of Chinese rocket artillery or ballistic missiles and outnumbered by China’s modernizing forces.

Unless Taiwan builds a robust capability to attack enemy troops landing on Taiwan, as well as the ships and aircraft to deliver those forces, it will be very hard for U.S. air and sea forces to reach Taiwan in time to help. The only practical solution may be to help Taiwan build the ability to repulse the initial Chinese invasion and develop a survivable plan to resupply Taiwanese forces under fire. Extending the length of a Chinese-Taiwan war from hours or days to weeks or months could buy enough time for reinforcements to arrive and for international pressure to come to bear on the Chinese government to stop the conflict.

Other conflicts with China in the Western Pacific also could involve U.S. forces. Japan and the Republic of the Philippines are both treaty allies, and the United States has a strong commitment to their defense. However, the home islands of these nations and their civilian populations are unlikely to be threatened by China in the foreseeable future. What China does claim are the Japanese-administered—but unpopulated—Senkaku Islands and the whole of the South China Sea, including reefs in the Philippines’ exclusive economic zone. China might conceivably attempt to take these areas by force. Although both conflicts would threaten the prestige of U.S. allies and put their military forces in danger, the threats to their nations and people are less severe than the devastation and conquest faced by the NATO Baltic states or the significant loss of life and physical damage to key population centers faced by South Korea.

³⁰⁷ The White House, 2017c.

The U.S. forces estimated to be needed for defending Taiwan, as well as other Indo-Pacific allies, are shown in Table 7.5. This would largely be an air and sea fight and would require 24 squadrons of land-based fighters (more than provided by the USAF in either ODS or OIF) and five CSGs with 15 squadrons of fighters and five ESGs. Swinging these forces to defending Taiwan would leave virtually no ready air or carrier forces for Korea. It might be possible, given some time, to swing some of these forces back to Korea if it fell victim to opportunistic attack, but Navy and Air Force fighter squadrons would be arriving much later to those fights than planned and might be significantly battle worn.

An alternative would be to help Taiwan, Japan, and the Philippines build the forces needed to blunt an invasion, or at least to slow it down for long enough for the United States and other allies to deploy reinforcements. As discussed in Chapter 5, one near-term option would be for these nations to build land-based anti-ship missile batteries that would be deployed on mobile platforms able to shoot and then hide from counterbattery fires. These batteries could be protected from attack by aircraft by mobile short-range air defenses and augmented by surface-to-surface rocket artillery able to attack any troops that managed to land by sea or air. Ideally, the United States would develop operational concepts in close collaboration with its allies, and then build systems and units with them from a common template. The United States could then support or reinforce its allies with its own similar systems and forces.

In addition to improving the land-based defenses of its allies, the United States should arm its own bombers with long-range anti-ship missiles. In quantity, such missiles could devastate an invasion fleet. These bombers will need support from tankers, ISR aircraft, and land- or carrier-based fighters to extend their range, help them more effectively find targets, and help protect them from Chinese fighter aircraft.

Table 7.5. Forces Available to Defend Taiwan as the Third Tier 2 Priority

US Forces	Operating Forces Available and Cumulative Commitments				Needed to Defend Taiwan (If Taiwan 2nd Tier-2 Priority)			Potential Mitigations
	Ready (Goal)	Training pipeline	Cumulative commitments	Remaining ready not committed	Total needed Indo-Pac	Additional needed to be deployed	Cum. gap in ready forces	
Army ABCT	9 ABCT	8 ABCT	8 NATO 1 RoK 1 ME	(Gap of 1 ready ABCT)	-	-	1 ABCT	Near-Term: <ul style="list-style-type: none"> Shift defense concept to emphasize Taiwanese land-based missile, artillery, and maneuver forces Help Taiwan build multi-domain capabilities interoperable with U.S. forces Build deployable U.S. multi-domain forces able to augment or reinforce Taiwanese forces Swing 2 CSG from day-day patrols Surge "+2" additional CSG Swing ground-based fighters from Korea Mid-term <ul style="list-style-type: none"> Buy LRASM for land-based bombers to augment US maritime capabilities
Army S/IBCT	16 IBCT 4 SBCT	16 IBCT 5 SBCT	3 NATO 4 ME/Afg 1 Afr 1 GRF	11 S/IBCT	2 Multi-domain IBCT	2 Multi-domain IBCT	-	
USMC Inf Bn	17 Bns	12 Bns	3 Bn NATO 1 Bn ME	13 Bn	5 Bn	5 Bn	-	
Fighters - AF	45 Sqds	11 Sqds	20 NATO 9 Indo-PAC 3 ME/Afg	13 Sqds	20 Sqd	11 Sqd	-	
Fighters - MC/Navy	13 (MC) 22 (N)	4 (MC) 7 (N)	4 (Land) NATO 18 (CSG)	13 Sqds	4 Sqds (Land)	4 Sqds (Land)	-	
Naval forces	6 (+2) CSG, 4 ESG	4 CSG, 4 ESG	2 CSG	4(+2) CSG, 4 ESG	5 CSG 5 ESG	5 CSG 5 ESG	1 CSG; 1 ESG	

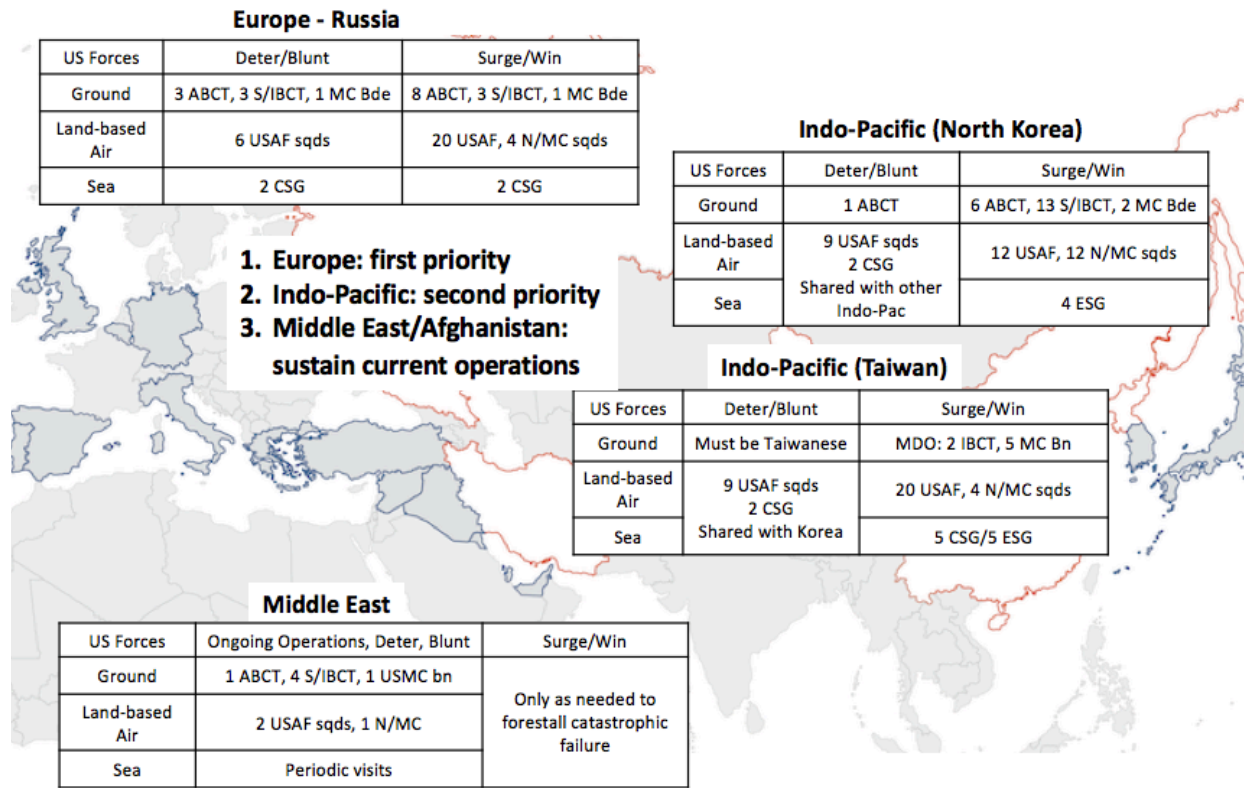
SOURCE: These estimates are largely drawn from Ochmanek et al., 2017.

Global Force Allocation Strategy: Three Scenarios

In this section, we assess what it would take to defeat aggression in each of the critical regions evaluated in this report with only those forces in existence today, but with some improvements in their posture and modernization of their equipment. To do so, we work through a notional total force management strategy (shown in Figure 7.2) that allocates existing AC and RC forces to deter aggression in Europe and the Indo-Pacific, along with continuing daily operations to counter VEOs and maintain a balance of power in the Middle East.

We should note that for this global force allocation strategy to succeed, DoD must be prepared to deploy units that we would not consider ready today. Each service must be prepared to deploy most of its force structure, including a full mobilization of the RCs to meet the demands described earlier. To do so, they could be forced to deploy units that are short of their full complement of ready personnel and equipment (i.e., readiness categories C-2 and C-3).

Figure 7.2. Notional Global Force Allocation Strategy



Scenario 1: Defeating Russian Aggression Against NATO While Deterring Aggression in Korea, the Western Pacific, and the Middle East

As we have discussed, deterring or defeating a Russian attack on the NATO Baltic states should be the top Tier 2 priority. The United States should allocate sufficient forces to be certain to win this fight, and those forces need to have equipment pre-positioned in Europe in order for them to reach the fight in time. Furthermore, we advocate that these forces be fenced from other deployments and contingencies. The threat of opportunistic aggression against allies and interests in other regions exists in the scenario but can be managed.

Well before a conflict begins, the United States should

1. pre-position a total of eight ABCT and three SBCT/IBCT equipment sets in Europe now (five more ABCT and one more SBCT/IBCT sets than currently planned), along with the equipment for supporting combat and logistics units. The equipment for these units should be stored in eastern Germany or western Poland. Pre-position the ground equipment for 24 fighter squadrons (with the USAF/Marine Corps mix we proposed earlier) and enough “dumb” general-purpose munitions and consumables (or access to them) to last for the first 30 days. (Expensive precision munitions and missiles can be pre-positioned in smaller numbers, with more transported when fighting begins.) This pre-positioned equipment would include the equipment for the one ABCT, one SBCT, one IBCT, and six fighter squadrons now based in or rotated through Europe.

2. exercise the NATO ability to man and deploy three of the ABCTs and four SBCTs/IBCTs on short notice to Poland.

If Russia attacks, then

1. the U.S. President should declare a national emergency and mobilize the U.S. Army and U.S. Air Force National Guard and Army, Air Force, Marine Corps, and Navy Reserves for 24 months
2. the President should immediately deploy the “surge” force, including the readiest ground troops to fall in on pre-positioned equipment, and the allocated air and naval forces.

For ground forces,

1. the U.S. Army should begin mobilization and training of National Guard and Reserve units as they are mobilized for deployment
2. the Army should continue to deploy one ABCT to Korea and four IBCTs to the Middle East and Afghanistan to maintain operations against VEOs. The Army should replace the ABCT in the Middle East with an SBCT and suspend deployments to Africa and other regions around the world.
3. the Marine Corps should continue to deploy one infantry battalion to the Middle East and Afghanistan and prepare its remaining units for deployment around the world as ordered
4. the Army and Marine Corps should then prepare their remaining forces for either a deployment to Europe as reinforcements are needed there, or deployments to the Indo-Pacific or the Middle East to strengthen the deterrent in those regions as needed. This would include the Army ABCTs remaining uncommitted, as well as the remaining SBCTs/IBCTs, Marine infantry battalions, and other combat and supporting units.

The USAF and USN should

1. continue to deploy nine ready USAF fighter squadrons to Korea and Japan to maintain deterrence in the Indo-Pacific
2. speed the readiness preparations for the remaining USAF AC and RC fighter squadrons. As they become ready, deploy them to Europe, the Indo-Pacific, or the Middle East as needed.
3. prepare bombers for SEAD missions in Europe, counter-WMD and other priority missions in Korea, and anti-ship missions in the Western Pacific.

The USN should

1. deploy two CSGs each to Europe, the vicinity of Korea, and the Western Pacific, along with their complement of 18 fighter squadron equivalents
2. prepare ESGs for potential deployment to Korea or the Western Pacific
3. speed the training for the remaining 23 USN and Marine Corps AC and two RC fighter squadrons and prepare them to either operate from a CSG surging for the Western Pacific, or swing to land bases in Korea, the Middle East, or Europe as needed.

Scenario 2: Countering North Korean Threats While Deterring Aggression in Europe, the Western Pacific, and the Middle East

In some ways, the toughest choices emerge when a lower-priority mission happens first. If a Korean conflict were to begin, the President would face a tough choice: either send most of the U.S. military’s ready units to Korea to win that fight and leave Europe far short of the forces

needed to blunt a Russian attack or send a smaller force to Korea while holding back forces to defend Europe. (President Truman faced a similar choice in 1950 and sent newly mobilized forces to both Korea and Europe.) We advocate fencing the needed ground forces for the European fight and sending the next-most ready units to Korea. It may be a bit easier to swing air and naval forces from Korea to the Western Pacific, but it would take time to disengage them from combat operations and they would arrive with depleted munitions and some battle-wear.

If North Korea attacks South Korea, then

1. the U.S. President should declare a national emergency and mobilize the U.S. Army and U.S. Air Force National Guard and Army, Air Force, Marine Corps, and Navy Reserves for 24 months
2. the President should immediately deploy the “surge” force to South Korea, including the readiest Army and Marine Corps ground troops not already fenced for Europe and the allocated air and naval forces
3. the Secretary of Defense should issue a warning order to forces fenced for Europe for a potential deployment if Russia chooses to take advantage of a Korean war to attack NATO.

For ground forces,

1. the Army should deploy the rotational ABCT, fence the next seven most ready ABCTs for potential deployment to Europe, and should be prepared to deploy the troops for the “blunt force” to fall in on pre-positioned equipment as needed to strengthen the deterrent in Europe
2. the Army should speed readiness preparations for remaining Regular, National Guard, and Reserve units for deployment as ordered to reinforce Korea or deter aggression in other regions
3. the Army should deploy four IBCTs to the Middle East and Afghanistan as usual, but should replace the ABCT in the Middle East with an SBCT and suspend deployments to other key regions
4. the Marine Corps should continue to deploy one infantry battalion to the Middle East and Afghanistan and prepare its remaining units for deployment around the world as ordered.

The Air Force should

1. fence the readiest fighter squadrons for Europe, including the bulk of the 5th-generation fighters, and prepare to deploy 18 additional squadrons to Europe if Russia chooses to take advantage of a Korean war to attack NATO
2. speed readiness preparations for the remaining AC and RC fighter squadrons for potential deployment around the world
3. deploy three squadrons to the Middle East as usual
4. prepare bombers for SEAD missions in Europe, counter-WMD and other priority missions in Korea, and anti-ship missions in the Western Pacific. Some of these bombers could then substitute for carriers that might swing from Korea to the Western Pacific.

The U.S. Navy should

1. deploy two CSGs and four ESGs to Korea
2. speed the readiness preparations for remaining CSGs, fighter squadrons, and ships for potential deployment.

Although we do not assume that either Russia or China would use a Korean war as an opportunity to attack their regional rivals, it would not be prudent to ignore these possibilities. DoD's allocation strategy must hedge against this risk by signaling a strong commitment by the mobilization of reserves and continuing a strong deterrent in Europe, the Western Pacific, and the Middle East, even if war resumed on the Korea Peninsula.

Scenario 3: Defending Taiwan Against Chinese Invasion While Deterring Aggression in Europe, Korea, and the Middle East

China could attack Taiwan before the United States can deploy adequate forces to defeat an invasion. The United States is not postured to defend Taiwan and would find it difficult to come to Taiwan's aid while its forces attempt to enter the theater in the face of Chinese A2/AD. Without a strong Taiwanese defense able to blunt an initial attack, Taiwan's forces would face defeat before U.S. forces could arrive in sufficient strength to reinforce them.

Therefore, beginning now, the United States should

1. press Taiwan to improve its capabilities to delay, degrade, and deny a quick Chinese conquest. Taiwan should emphasize long-range anti-ship missiles and rocket artillery forces to counter an invasion and short-range air defenses to protect these units.
2. improve U.S. long-range anti-ship missiles that can be deployed from a distance by bombers, fighters, and ground-based multiple rocket launchers. (Ship-launched versions also would be desirable.)
3. build end-to-end operational concepts with key allies and partners to ensure that they can blunt an invading force and that U.S. forces can assist and reinforce them as operational needs and U.S. policy demands.

If the Chinese nevertheless invaded Taiwan, then

1. if the President decides to come to Taiwan's defense, he or she should mobilize all National Guard and Reserve forces as a signal of national will to deter other aggressors and to support ongoing operations
2. the U.S. Air Force should be prepared to employ long-range bombers with anti-ship cruise missiles to help defeat an attack. Depending on contemporaneous naval deployments for day-to-day and contingency operations, these bombers may be in a position to be the first to respond. The Air Force also should be prepared to surge fighters, tankers, and ISR aircraft as needed to target enemy forces.
3. the U.S. Navy should deploy four CSGs to the contingent theater to assist and reinforce U.S. allies, as ordered by the President. The Navy also should send up to four ESGs to the theater to deploy and support ground forces.
4. the Army and/or Marine Corps should be ready to deploy combat teams to the region to reinforce U.S. allies and friends. These brigade-level combat teams should comprise multi-domain fires battalions (e.g., anti-ship, rocket artillery, and short-range air defenses); the C2 and ISR assets to integrate their operations with Joint U.S. and allied forces; and supporting infantry, engineering, aviation, and logistics forces.

Vulnerable Assumptions and Caveats

It is important to note several significant assumptions in the three scenarios described earlier. First, the force allocations as described would likely require a full mobilization of the National Guard and Reserve, under 10 U.S.C. Section 12301, for at least two of these contingencies.³⁰⁸ A full mobilization of the RCs has not been conducted since World War II and is likely to severely strain service garrisoning, training, and equipping capabilities.

Second, and perhaps more importantly, this concept would require that up to 80 percent of each service's units be prepared to deploy. As shown earlier, 14 of the planned 17 ABCTs and 44 of 56 fighter squadrons would need to be deployed or fenced to counter a North Korean attack and still remain ready to deter Russia. It is unclear that the services could actually deploy such a high percentage of these units at the same time. There are always some troops that are not available in a unit at any given time, some equipment that is inoperable, and other factors that cause difficulty in deploying a unit. Key Army, Marine Corps, and Air Force units would have to be deployed at rates far higher than these services maintained at any time since World War II.³⁰⁹ At these high levels of unit deployment, each service might be compelled to deploy units that are at lower readiness levels than those deployed to Iraq and Afghanistan. (For example, the services deployed units at C-1, the highest readiness level, to Iraq and Afghanistan. To support this allocation strategy, services might need to deploy some units without a major readiness exercise in the last two years. These units might be C-2 or even lower.)

Third, such a high percentage of force deployments leaves no slack to rest units that are fighting, replace combat casualties, or surge forces to meet a new theater or global challenge.

Ultimately, it may be necessary to opt out of some tasks in Korea or the Middle East in order to conserve strength for Europe or the Western Pacific.

³⁰⁸ A full mobilization requires an act of Congress and mobilizes all National Guard and Reserve units in response to a declared war or national emergency. Full mobilizations can last for the duration of the war or emergency plus six months. See 10 U.S.C., Section 12301, "Reserve Components Generally," undated(a).

³⁰⁹ Bonds et al., 2015.

8. Conclusions and Recommendations

Significant Policy-Resource Gaps Exist

As described in Chapters 2 through 6, we find that significant gaps exist in the ability of the United States and its allies to deter or defeat aggression in regions important to the United States. NATO allies Estonia, Latvia, and Lithuania remain vulnerable to a rapid Russian invasion. South Korea is vulnerable to a drawn-out barrage that utilizes a relatively small percentage of North Korea's artillery on any given day. Taiwan and other nations in the Western Pacific are vulnerable to Chinese coercion and aggression. And, finally, violent extremists continue to pose a threat in the Middle East, Afghanistan, and around the world.

Solutions to these problems will take both money and time. The United States needs to increase some elements of its force structure, such as the number of ABCTs and the air, ground, and sea-based forces able to find and destroy enemy A2/AD missile systems. These forces need more and improved long-range munitions to accomplish their combat tasks. Pre-positioned equipment sets, especially for armored forces, are needed to ensure that reinforcements can arrive in time to make a difference on the battlefield. Furthermore, the allies need to provide the infrastructure for the United States to base some forces and quickly receive reinforcements.

An Insufficient Budget Is Unable to Fix All Problems

As much as the United States might wish to address all of these problems, future budgets are unlikely to provide the funding amounts required to do so. As described in Chapter 7, the DoD base budget would need to grow from approximately \$582 billion in FY 2018 to \$688 billion by FY 2027 (in constant FY 2018 dollars) in order to accommodate items in the base budget today, as well as projected growth in both of these accounts and the Trump administration's goals to modernize and expand the military.³¹⁰ This estimate includes the funding needed over the same period to modernize the U.S. nuclear arsenal and the triad of bombers, land-based ballistic missiles, and submarine-launched missiles to deliver them, along with expanding the nation's missile defense system to counter North Korea's missile development effort.

In addition, OCO in Europe, the Middle East, and Afghanistan are budgeted at \$65.2 billion in FY 2018 and show no clear sign of abating.

Recommendations for the United States and Allies

The Trump administration and future administrations will need to prioritize their investments. As discussed in Chapter 2, investments should be prioritized first by their importance to the United States and its interests; second, by the size and urgency of the gap

³¹⁰ McGarry and Towell, 2018.

between the capabilities required and the actual forces ready; and third, by the opportunities for the United States—working with its allies—to close these gaps.

According to this prioritization, the United States should fully fund efforts to modernize its nuclear deterrent, build a limited ballistic missile defense, and counter terrorist threats to the homeland, particularly those utilizing WMD. These objectives should all be regarded as Tier 1 priorities.

Second-tier, but still urgent priorities are a specific set of threats posed by Russia, North Korea, and China. Improving the defense of NATO's Baltic states should be regarded as the most urgent Tier 2 priority, both because the current vulnerability of the Baltic states is significant and because a war with Russia could escalate quickly to the nuclear threshold. Given that the results of a conventional war with Russia would be disastrous and the risks of a nuclear war potentially catastrophic, it is far better to prevent even a small chance of such a war occurring by investing in a deterrent able to stop a Russian attack short of the Baltic capitals.

Modernization of U.S. nuclear forces and improvements to our ballistic missile defenses mitigates the nuclear problems that North Korea poses to some degree. More needs to be done to prevent the proliferation of DPRK nuclear weapons, although the prospect of proliferation because of a collapse does not look to be as immediate as once thought. South Korea and the United States should do more to achieve an effective counter to North Korea's artillery and the civilian casualties and panic an attack could cause. The United States also should improve its ability to evacuate U.S. citizens—especially military dependents and civilians on official business—if warfighting were to resume on the Korean Peninsula.

The ability of the United States to defend Taiwan and other Asia-Pacific nations with forces based at great distances away from the conflict is rapidly diminishing. The United States should focus on helping these nations better defend themselves until U.S. help arrives and building the military concepts and forces needed to come to their aid if they are attacked.

Long-term priorities should include countering Chinese aggression and adventurism against U.S. allies and other nations in the Indo-Pacific, countering Iran, and degrading and defeating VEOs.

The United States should continue to find ways to reduce the threats posed by extremists and increase the capacity of legitimate governments to do more on their own. This includes finding ways to better counter Iranian support of terror groups and other forms of regional coercion.

Detailed recommendations for improvements in conventional forces and capabilities are presented at the end of Chapters 3, 4, and 5, and will not be repeated here.

Future budgets may not support all of these recommendations or others sought by the Trump administration. However, some investments will still be needed to make existing forces able to accomplish their most critical missions:

For Europe, at a minimum, the United States will need to make the following near-term improvements:

- Pre-position the equipment and munitions required for eight armored and three SBCTs/IBCTs and their supporting forces. After accounting for forward-deployed and rotational forces and existing U.S. Army and Marine Corps equipment sets, this includes

five more ABCT sets and one more IBCT set than currently planned. Three of these ABCT sets, along with the three SBCTs/IBCTs and supporting forces, should be postured to blunt an initial Russian attack, while the remainder should be postured as part of NATO's reinforcement surge within 30 days,

- Acquire more mobile rocket artillery pieces, a new generation of area-effects weapons, and enough stocks of all types of munitions and pre-position them in Europe to wage a lengthy campaign to beat mobile Russian forces.
- Increase the number of ready Army ABCTs to ten (of 17), and the number of ready Air Force squadrons to 45 (of 56) in line with service readiness goals.
- Rebuild electronic warfare capabilities and short-range air defenses to protect U.S. forces.
- Acquire better capabilities to defeat advanced Russian air defenses, including advanced targeting systems, long-range anti-radiation missiles, and area-effects munitions able to strike mobile SAMs and their radars before they can move.
- Employ smaller-footprint, mobile C2 nodes so that U.S. forces can evade Russian targeting and destruction and maintain communications with dispersed units while under electronic attack.
- Additional equipment sets for fighter squadrons may also be needed.

To deter North Korean aggression, the United States should be prepared to

- speed the mobilization of Reserves and the training needed to make all forces in the deployment pipeline ready
- acquire more airborne sensor platforms, such as the Global Hawk for wide-area surveillance and the Predator for focused-area targeting and striking fleeting targets
- deploy more long-range rocket artillery able to hit North Korean forces when they are out of their bunkers and most vulnerable
- deploy more missile defenses to protect cities, theater bases, and air- and seaports
- acquire more area-effects munitions for rocket artillery forces and greater supplies of rockets and munitions than are currently being bought
- develop advanced sensors better able to target fleeting artillery and missile systems in all weather.

In order to deter Chinese aggression against—or coercion of—its neighbors in the Western Pacific, the United States should

- speed the mobilization of Reserves and the training needed to make all forces in the deployment pipeline ready
- equip bombers with long-range anti-ship and land-attack cruise missiles
- acquire land-based anti-ship missiles, longer-range rocket artillery, and the short-range air defenses to protect both
- help Japan, the Philippines, Taiwan, and other friendly military forces develop sufficient A2/AD capabilities of their own to blunt an initial Chinese attack for long enough for the United States to arrive. These nations should develop these capabilities to be interoperable with U.S. “multi-domain” forces so that the United States can augment, resupply, or reinforce them as directed.

Recommendations for U.S. Allies

NATO, South Korean, and Western Pacific allies and friends all can and must do more to assure their own defense. We therefore recommend the following actions:

- NATO nations should increase their air and ground forces in order to contribute a greater share to the defense of the Baltics and other vulnerable NATO allies. Over time, the European allies should progressively increase their contribution to half and then to a majority of the needed forces to blunt and defeat an invasion.
- South Korea should end cuts to its army until North Korea has made real progress toward decreasing the threats that it poses with its missile and artillery forces. South Korea also should increase its own missile defenses.
- Japan, the Philippines, and Taiwan should increase their own A2/AD capabilities. These capabilities include anti-ship, anti-aircraft, and surface-to-surface missile systems. Doing so would greatly increase their ability to delay and degrade an invasion, were China to decide on such a course, and give the United States and other nations time to come to their aid. As mentioned earlier, Japan, the Philippines, and Taiwan should develop these systems, the forces that use them, and the operational concept for employing them in cooperation with the United States to maximize the ability of the United States to come to their aid.

Global Force Allocation Strategies

Additional money to grow U.S. military forces may not become available, and even if it were available, it would take several years to significantly increase the ready force structure. Therefore, DoD must assess alternatives to solve this problem with the forces available, as described in Chapter 7 (with some changes to their mix and readiness).

Although we do not assume that more than one contingency would happen simultaneously, it would not be prudent to ignore that possibility. Prudent allocation strategies must hedge against that risk by continuing a strong deterrent in Europe and building allied capabilities in the Western Pacific and on the Korea Peninsula.

At the same time, it is important to note three significant assumptions in this strategy. First, the force allocation described earlier would require a complete mobilization of the National Guard and Reserve. A complete mobilization of the RCs has not been conducted since World War II and would likely severely strain garrisoning, training, and equipping. Second, and perhaps more importantly, this concept would require that a very high percentage of each service's forces be deployed or made ready and fenced for a second contingency at the same moment. In fact, 14 of the planned 17 ABCTs and 44 of 56 fighter squadrons would need to be deployed or fenced to counter a North Korean attack and still remain ready to deter Russia. It is unclear that either the Army or the Air Force can actually deploy this many units at the same time. There are always some troops that are not available in a unit at any given time, some equipment that is inoperable, and some other factors that cause difficulty in deploying a unit. Third, such a high percentage of force deployments leaves no slack to rest units that are fighting, replace combat casualties, or surge forces to meet a new theater or a global challenge.

For these reasons, it may be necessary to opt out of some tasks in Korea or the Middle East to conserve U.S. strength for Europe or the Western Pacific.

Appendix. Russia Changes the Equation: A Brief Overview of U.S.-Russia Relations

The reemergence of Russia as a state that threatens its neighbors and U.S. interests elsewhere has profoundly changed the defense equation for the United States.

At the end of the Cold War, President George H. W. Bush laid out a strategy to bring freedom to all of Europe and reduce tensions with the then–Soviet Union.³¹¹ According to the August 1991 NSS:

We do not know what path the Soviet Union will ultimately take, but a return to the same superpower adversary we have faced for over 40 years is unlikely. That said, the Soviet Union remains the only state possessing the physical military capability to destroy American society with a single, cataclysmic attack and, in spite of severe economic strains, the modernization of Soviet strategic forces continues virtually across the board.³¹²

By 2007, thoughts on Russia’s course were divided. RAND researchers observed that

[o]ther large and technically advanced states, such as Russia and, in the future, India, could pose operational challenges However, neither of these countries seems likely to pursue objectives and policies that would plausibly lead to large-scale military conflict with the United States.³¹³

According to the 2008 NDS:

Russia’s retreat from openness and democracy could have significant security implications for the United States, our European allies, and our partners in other regions. Russia has . . . continued to bully its neighbors . . . has begun to take a more active military stance . . . and even threatened to target countries hosting potential U.S. anti-missile bases All of these actions suggest a Russia exploring renewed influence, and seeking a greater international role.³¹⁴

However, the 2012 Defense Strategic Guidance reflected a more optimistic view:

Most European countries are now producers of security rather than consumers of it [This] has created a strategic opportunity to rebalance the U.S. military investment in Europe, moving from a focus on current conflicts toward a focus

³¹¹ George H. W. Bush, “A Europe Whole and Free: Remarks to the Citizens in Mainz,” Rheingoldhalle, Mainz, Federal Republic of Germany, May 31, 1989.

³¹² The White House of George H. W. Bush, *National Security Strategy of the United States*, Washington, D.C., August 1991, p. 1.

³¹³ Andrew R. Hoehn, Adam R. Grissom, David A. Ochmanek, David A. Shlapak, and Alan J. Vick, *A New Division of Labor: Meeting America’s Security Challenges Beyond Iraq*, Santa Monica, Calif.: RAND Corporation, MG-499-AF, 2007, p. 36.

³¹⁴ DoD, *National Defense Strategy*, Washington, D.C., June 2008a, pp. 3–4.

on future capabilities our engagement with Russia remains important, and we will continue to build a closer relationship in areas of mutual interest³¹⁵

Even the 2014 QDR, published after Russia's invasion of Ukraine, seems to reflect some ambivalence:

The United States is willing to undertake security cooperation with Russia, both in the bilateral context and in seeking solutions to regional challenges, when our interests align, including Syria, Iran, and post-2014 Afghanistan. At the same time, Russia's multi-dimensional defense modernization and actions that violate the sovereignty of its neighbors present risks. We will engage Russia to increase transparency and reduce the risk of military miscalculation.³¹⁶

In 2015, after his administration's last defense review, President Obama established a strong stance against Russian aggression:

Russia's violation of Ukraine's sovereignty and territorial integrity—as well as its belligerent stance toward other neighboring countries—endangers international norms that have largely been taken for granted since the end of the Cold War We will deter Russian aggression, remain alert to its strategic capabilities, and help our allies and partners resist Russian coercion over the long term, if necessary.³¹⁷

³¹⁵ DoD, *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense*, Washington, D.C., 2012, p. 3.

³¹⁶ DoD, 2014, p. 6.

³¹⁷ The White House, *National Security Strategy of the United States of America*, Washington, D.C., February 2015, pp. 10, 25.

References

- 32nd Army Air and Missile Defense Command, “Operation Iraqi Freedom: Theater Army Air and Missile Defense History,” Fort Bliss, Tex., September 2003.
- Albright, David, *Future Directions in the DPRK’s Nuclear Weapons Program: Three Scenarios for 2020*, Baltimore, Md.: U.S.-Korea Institute at the Paul H. Nitze School of Advanced International Studies, Johns Hopkins University, 2015. As of March 4, 2019:
<https://38north.org/wp-content/uploads/2015/02/NKNF-Future-Directions-2020-Albright-0215.pdf>
- Ali, Javed, “Chemical Weapons and the Iran-Iraq War: A Case Study in Noncompliance,” *Nonproliferation Review*, Vol. 8, No. 1, Spring 2001, pp. 43–58.
- Army Financial Management & Comptroller, “Resourcing the Army - FY19 Budget Request,” Stand-To, webpage, March 15, 2018. As of October 28, 2018:
<https://www.army.mil/standto/2018-03-15>
- Arsana, I Made Andi, “Is China a Neighbor to Indonesia?” *Jakarta Post*, August 8, 2011.
- Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA[ALT]), *Weapon Systems Handbook 2016: America’s Army: Winning in a Complex World*, Washington, D.C., April 18, 2016. As of June 16, 2018:
<https://www.army.mil/e2/c/downloads/431298.pdf>
- Association of Southeast Asian Nations “Our People, Our Community, Our Vision,” Chairman’s Statement of the 26th ASEAN Summit, Kuala Lumpur and Lagkawi, April 27, 2015.
- Banks, Martin, “NATO Members ‘Have Turned a Corner’ in Defense Spending, Stoltenberg Says,” *Defense News*, June 7, 2018. As of March 11, 2019:
<https://www.defensenews.com/global/europe/2018/06/07/nato-members-have-turned-a-corner-in-defense-spending-stoltenberg-says/>
- Barnes, Julian E., “NATO Fears Its Forces Not Ready to Confront Russian Threat,” *Wall Street Journal*, March 28, 2018. As of March 9, 2019:
<https://www.wsj.com/articles/nato-moves-toward-readying-more-troops-to-confront-russian-threat-1522290156>
- BBC News, “Russia Suspected of Jamming GPS Signal in Finland,” November 12, 2018a. As of November 30, 2018:
<https://www.bbc.com/news/world-europe-46178940>

- , “Tension Escalates After Russia Seizes Ukraine Naval Ships,” November 26, 2018b. As of November 30, 2018:
<https://www.bbc.com/news/world-europe-46338671>
- Bell, B. B., *Statement of General B. B. Bell, Commander, United Nations Command; Commander, Republic of Korea–United States Combined Forces Command; and Commander, United States Forces Korea before the House Armed Services Committee*, U.S. Forces Korea, March 11, 2008. As of March 19, 2019:
<http://ogc.osd.mil/olc/docs/testBell080311.pdf>
- Bennett, Bruce W., *Preparing for the Possibility of a North Korean Collapse*, Santa Monica, Calif.: RAND Corporation, RR-331-SRF, 2013. As of March 12, 2019:
https://www.rand.org/pubs/research_reports/RR331.html
- Bennett, Bruce W., and Jennifer Lind, “The Collapse of North Korea: Military Missions and Requirements,” *International Security*, Vol. 36, No. 2, Fall 2011, pp. 84–119.
- Bermudez, Joseph S., Jr., *North Korean Underground Facilities: Implications for the IDF*, Jane’s Information Group, Latrun III Annual Conference, September 1–3, 2009.
- Bildt, Carl, “3 Ways to Stop ‘Revisionist, Militaristic’ Russia,” *Politico*, updated February 16, 2016. As of March 8, 2019:
<https://www.politico.eu/article/long-game-against-revisionist-russia-putin-assad/>
- Binnendijk, Hans, *Friends, Foes, and Future Directions: U.S. Partnerships in a Turbulent World: Strategic Rethink*, Santa Monica, Calif.: RAND Corporation, RR-1210-RC, 2016. As of March 13, 2019:
https://www.rand.org/pubs/research_reports/RR1210.html
- Blanchard, Ben, “Duterte Aligns Philippines with China, Says U.S. Has Lost,” Reuters, October 20, 2016. As of March 13, 2019:
<https://www.reuters.com/article/us-china-philippines/duterte-aligns-philippines-with-china-says-u-s-has-lost-idUSKCN12K0AS>
- Bonds, Timothy M., Michael Johnson, and Paul S. Steinberg, *Limiting Regret: Building the Army We Will Need*, Santa Monica, Calif.: RAND Corporation, RR-1320-RC, 2015. As of March 7, 2019:
https://www.rand.org/pubs/research_reports/RR1320.html
- Bonds, Timothy M., Eric V. Larson, Derek Eaton, and Richard E. Darilek, *Strategy-Policy Mismatch: How the U.S. Army Can Help Close Gaps in Countering Weapons of Mass Destruction*, Santa Monica, Calif.: RAND Corporation, RR-541-RC, 2014. As of December 30, 2017:
https://www.rand.org/pubs/research_reports/RR541.html

- Bonds, Timothy M., Joel B. Predd, Timothy R. Heath, Michael S. Chase, Michael Johnson, Michael J. Lostumbo, James Bonomo, Muharrem Mane, and Paul S. Steinberg, *What Role Can Land-Based Multi-Domain Anti-Access/Area Denial Forces Play in Deterring or Defeating Aggression?* Santa Monica, Calif.: RAND Corporation, RR-1820-A, 2017. As of March 13, 2019:
https://www.rand.org/pubs/research_reports/RR1820.html
- Boston, Scott, Michael Johnson, Nathan Beauchamp-Mustafaga, and Yvonne K. Crane, *Assessing the Conventional Force Imbalance in Europe: Implications for Countering Russian Local Superiority*, Santa Monica, Calif.: RAND Corporation, RR-2402, 2018. As of March 8, 2019:
https://www.rand.org/pubs/research_reports/RR2402.html
- Buckley, Chris, “China Takes Aim at Western Ideas,” *New York Times*, August 19, 2013. As of July 30, 2015:
<http://www.nytimes.com/2013/08/20/world/asia/chinas-new-leadership-takes-hard-line-in-secret-memo.html>
- Bush, George H. W., “A Europe Whole and Free: Remarks to the Citizens in Mainz,” Rheingoldhalle, Mainz, Federal Republic of Germany, May 31, 1989. As of March 15, 2019:
<https://usa.usembassy.de/etexts/ga6-890531.htm>
- CBO—See Congressional Budget Office.
- Center for Strategic and International Studies, “Missile Threat CSIS Missile Defense Project: Missiles of North Korea,” 2017. As of June 5, 2017:
<https://missilethreat.csis.org/country/dprk/>
- Chairman of the Joint Chiefs of Staff, *The National Military Strategy of the United States of America 2015: The United States Military’s Contribution to National Security*, Washington, D.C., June 2015. As of March 7, 2019:
https://www.jcs.mil/Portals/36/Documents/Publications/2015_National_Military_Strategy.pdf
- Chen, Dingding, “Chinese Foreign Policy Needs Major Reform,” *The Diplomat*, August 21, 2014. As of March 13, 2019:
<https://thediplomat.com/2014/08/chinese-foreign-policy-needs-major-reform/>
- Cheney, Dick, *Report of the Secretary of Defense to the President and the Congress*, Washington, D.C., February 1992. As of March 15, 2019:
https://history.defense.gov/Portals/70/Documents/annual_reports/1992_DoD_AR.pdf?ver=2014-06-24-152154-673
- Chin, Curtis, “Xi Jinping’s ‘Asia for Asians’ Mantra Evokes Imperial Japan,” *South China Morning Post*, July 14, 2014. As of March 13, 2019:

<https://www.scmp.com/comment/insight-opinion/article/1553414/xi-jinpings-asia-asians-mantra-evokes-imperial-japan>

“China Flaunts Political Clout in Malaysia with Envoy’s Defiance,” *BenarNews*, September 29, 2015. As of March 13, 2019:

<https://www.benarnews.org/english/news/malaysian/diplomacy-09292015205512.html>

“China, Malaysia Conclude First Joint Military Exercise,” *Xinhua*, September 22, 2015. As of April 2, 2018:

http://www.chinadaily.com.cn/world/2015-09/23/content_21956618.htm

“China Ships Trespassing Off Sarawak for Two Years: KL,” *Straits Times*, August 16, 2015. As of April 2, 2018:

<http://www.straitstimes.com/asia/se-asia/china-ships-trespassing-off-sarawak-for-two-years-kl>

“China’s Two-Year Intrusion into Sarawak Waters,” *Free Malaysia Today*, August 15, 2015.

Clark, Colin, “Trump WH Makes It Official: Bigger Navy, Air Force, and ‘End’ to Sequestration,” *Breaking Defense*, January 20, 2017. As of March 8, 2019:

<https://breakingdefense.com/2017/01/trump-wh-makes-it-official-bigger-navy-air-force-end-to-sequestration/>

CNN, “Trump’s Speech in Warsaw (Full Transcript, Video),” July 6, 2017. As of March 8, 2019:

<https://www.cnn.com/2017/07/06/politics/trump-speech-poland-transcript/index.html>

Coalson, Robert, and Nail Khisamiev, “Europe’s Tatars Resist Being Represented by Moscow Proxy Group,” Radio Free Europe, April 22, 2016. As of June 21, 2016:

<https://www.rferl.org/a/european-tatars-resist-moscow-proxy-group-/27690467.html>

Cohen, Zachary, “U.S. Cyber Chief Says Trump Hasn’t Told Him to Confront Russian Cyber Threat,” CNN, February 27, 2018. As of April 1, 2018:

<https://www.cnn.com/2018/02/27/politics/cybercom-rogers-trump-russian-cyber-threat/index.html>

Coker, Kathryn Roe, *United States Army Reserve Mobilization for the Korean Wars*, Fort Bragg: Office of the Army Reserve History, United States Army Reserve Command, 2013.

Congressional Budget Office, *Modernizing the Army’s Rotary-Wing Aviation Fleet*, Washington, D.C., No. 2898, November 2007. As of March 12, 2019:

<https://www.cbo.gov/sites/default/files/110th-congress-2007-2008/reports/11-30-helicopters.pdf>

———, *Projected Costs of Nuclear Forces, 2017–2026*, Washington, D.C., February 2017a. As of December 1, 2017:

<https://www.cbo.gov/sites/default/files/115th-congress-2017-2018/reports/52401-nuclearcosts.pdf>

- , *Approaches for Managing the Costs of U.S. Nuclear Forces, 2017 to 2046*, Washington, D.C., October 2017b. As of March 8, 2019:
<https://www.cbo.gov/system/files/115th-congress-2017-2018/reports/53211-nuclearforces.pdf>
- , *Analysis of the Long-Term Costs of the Administration's Goals for the Military*, Washington, D.C., December 4, 2017c. As of December 4, 2017:
<https://www.cbo.gov/publication/53350>
- Copp, Tara, "26,000 U.S. Troops Total in Iraq, Afghanistan and Syria, DoD Reports," *Military Times*, November 28, 2017. As of March 8, 2019:
<https://www.militarytimes.com/news/your-military/2017/11/27/26000-us-troops-total-in-iraq-afghanistan-and-syria-dod-reports/>
- Cote, Owen R., Jr., "Assessing the Undersea Balance Between the U.S. and China," MIT Security Studies Program Working Paper, February 2011.
- Crane, Keith, Shanthi Nataraj, Patrick B. Johnston, and Gursel Rafig oglu Aliyev, *Russia's Medium-Term Economic Prospects*, Santa Monica, Calif.: RAND Corporation, RR-1468-RC, 2016. As of March 9, 2019:
https://www.rand.org/pubs/research_reports/RR1468.html
- "Create a New Situation in Periphery Diplomacy and Promote Cooperation in the Asia-Pacific Region—Foreign Minister Wang Yi Discusses President Xi Jinping's Visit to Indonesia and Malaysia and Attendance at 21st Informal Meeting of APEC Leaders," *Xinhua*, October 8, 2013
- DeAeth, Duncan, "Japan, Malaysia Will Cooperate to Ensure Freedom of Navigation in S. China Sea," *Taiwan News*, June 13, 2018. As of March 13, 2019:
<https://www.taiwannews.com.tw/en/news/3456041>
- Demick, Barbara, "Former Defense Secretary William Perry on Why We Didn't Go to War with North Korea," *Los Angeles Times*, April 14, 2017. As of March 12, 2019:
<https://www.latimes.com/nation/la-fg-perry-north-korea-20170414-story.html>
- Denyer, Simon, and Amanda Erickson, "Beijing Warns Pyongyang: You're on Your Own If You Go After the United States," *Washington Post*, August 11, 2017. As of March 12, 2019:
https://www.washingtonpost.com/world/china-warns-north-korea-youre-on-your-own-if-you-go-after-the-us/2017/08/11/a01a4396-7e68-11e7-9026-4a0a64977c92_story.html
- Diamond, Christopher, "Report: Houthi Rebels Flying Iranian-Made 'Kamikaze Drones' into Surveillance Drones," *Defense News*, March 28, 2017. As of April 1, 2018:
<https://www.defensenews.com/global/mideast-africa/2017/03/28/report-houthi-rebels-flying-iranian-made-kamikaze-drones-into-surveillance-radars/>
- Dobbins, James F., *Foreign Service: Five Decades on the Frontlines of American Diplomacy*, Washington, D.C.: Brookings Institution Press, 2017.

DoD—See U.S. Department of Defense.

Donnelly, William M., “Army National Guard: Korean War Mobilization,” *Military Review*, Vol. 80, No. 1, 2000.

———, *Under Army Orders: The Army National Guard During the Korean War*, College Station, Tex.: A&M University Press, 2001.

Duchatel, Mathieu, Oliver Brauner, and Zhou Hang, “Protecting China’s Overseas Interests: The Slow Shift Away from Non-Interference,” Stockholm International Peace Research Institute, No. 41, June 2014. As of March 13, 2019:

<https://www.sipri.org/publications/2014/sipri-policy-papers/protecting-chinas-overseas-interests-slow-shift-away-non-interference>

Eckstein, Megan, “CNO: ‘Dynamic Force Employment’ Could Allow More High-End Training for Strike Groups,” USNI News, May 16, 2018a. As of November 21, 2018:

<https://news.usni.org/2018/05/16/cno-dynamic-force-employment-allow-high-end-training-strike-groups>

———, “Adm. Foggo Warns of Russian Submarines Challenging U.S. Defenses,” USNI News, October 3, 2018b. As of March 13, 2019:

<https://news.usni.org/2018/10/03/adm-foggo-warns-of-russian-subs-preparing-an-atlantic-undersea-battlespace>

Edelman, Eric, Gary Roughead, Christine Fox, Kathleen Hicks, Jack Keane, Andrew Krepinevich, Jon Kyl, Thomas Mahnken, Michael McCord, Michael Morell, Anne Patterson, and Roger Zakheim, *Providing for the Common Defense: The Assessment and Recommendations of the National Defense Strategy Commission*, Washington, D.C.: United States Institute of Peace, November 13, 2018, p. v. As of November 13, 2018:

<https://www.usip.org/publications/2018/11/providing-common-defense>

Field Manual 34-71, *Opposing Force Training Module: North Korean Military Forces*, Washington, D.C.: Headquarters, U.S. Department of the Army, 1982.

Fifield, Anna, “North Korea Says It Was Practicing to Hit U.S. Military Bases in Japan with Missiles,” *Washington Post*, March 6, 2017. As of March 11, 2019:

https://www.washingtonpost.com/world/north-korea-says-it-was-trying-to-hit-us-military-bases-in-japan-with-missiles/2017/03/06/b375ad36-327f-4d9e-9dba-398a7cde8742_story.html?utm_term=.6ce9864145ea

“First Round of Sino-U.S. Economic Dialogue: Discussed Almost All Main Issues Except for Going to the Moon,” *China News Online*, July 29, 2009. As of July 30, 2015:

<http://www.chinanews.com/gn/news/2009/07-29/1794984.shtml>

Fontenot, Gregory, E. J. Degen, and David Tohn, *On Point: The United States Army in Operation Iraqi Freedom*, Fort Leavenworth, Kan.: Combat Studies Institute Press, 2004.

- Fravel, M. Taylor, "Explaining Stability in the Senkaku (Diaoyu) Islands Dispute," in Gerald Curtis, Ryosei Kokubun, and Wang Jisi, eds., *Getting the Triangle Straight: Managing China-Japan-U.S. Relations*, Washington, D.C.: Brookings Institution, 2010, pp. 144–164.
- Freedberg, Sydney J., Jr., "Army Soldiers Slash Time to Move from Port to Front: Detering Russia," *Breaking Defense*, March 17, 2017. As of March 11, 2019:
<https://breakingdefense.com/2017/03/army-soldiers-slash-time-to-move-from-port-to-front-detering-russia/>
- Gamel, Kim, "U.S. Military Plans Evacuation Drill at Same Time as War Games with S. Korea," *Stars and Stripes*, March 22, 2018. As of March 11, 2019:
<https://www.stripes.com/news/us-military-plans-evacuation-drill-at-same-time-as-war-games-with-s-korea-1.518101>
- Garamone, Jim, "DoD Clarifies Reserve-Component Mobilization Policy," American Forces Press Service, April 16, 2007. As of October 28, 2018:
https://www.army.mil/article/2681/dod_clarifies_reserve_component_mobilization_policy
- Goldenberg, Ilan, and Nicholas A. Heras, "Is America Getting Sucked into More War in Syria?" *The Atlantic*, June 9, 2017. As of March 14, 2019:
<https://www.theatlantic.com/international/archive/2017/06/trump-syria-iran-war-isis/529803/>
- Gordon, Michael R., and Eric Schmitt, "U.S. Sends Civilian Team to Syria to Help the Displaced Return Home," *New York Times*, June 22, 2017. As of March 14, 2019:
<https://www.nytimes.com/2017/06/22/us/politics/syria-trump-civilian-humanitarians.html>
- Gould, Joe, "Trump Administration: Troops Can Stay in Iraq, Syria Indefinitely," *Defense News*, February 23, 2018a. As of March 8, 2019:
<https://www.defensenews.com/congress/2018/02/23/trump-administration-troops-can-stay-in-iraq-syria-indefinitely/>
- , "Mattis, GOP Hawks Warn Trump Against Defense Cuts at White House Meeting," *Defense News*, December 5, 2018b. As of December 6, 2018:
<https://www.defensenews.com/congress/2018/12/04/mattis-gop-hawks-warn-trump-at-white-house-against-defense-cuts/>
- Gove, Michael, and Kai Diekmann, "Full Transcript of Interview with Donald Trump," *The Times* (UK), January 16, 2017. As of April 1, 2018:
<https://www.thetimes.co.uk/article/full-transcript-of-interview-with-donald-trump-5d39sr09d>
- Graham, Bradley, "Rapid Deployment Plans in the Crucible," *Washington Post*, October 11, 1994. As of March 8, 2019:
https://www.washingtonpost.com/archive/politics/1994/10/11/rapid-deployment-plans-in-the-crucible/1e365974-53e8-4313-99cf-fcc1e0efec03/?noredirect=on&utm_term=.3c35650c3c4d

- Greenert, Jonathan, and Mark Welsh, "Breaking the Kill Chain," *Foreign Policy*, May 16, 2013. As of June 27, 2013:
<https://foreignpolicy.com/2013/05/17/breaking-the-kill-chain/>
- Grossman, Derek, "The Quad Is Not Enough," *Foreign Policy*, October 19, 2018. As of October 24, 2018:
<https://foreignpolicy.com/2018/10/19/to-balance-china-call-vietnam-malaysia-philippines/>
- Gubernatorova, Nataliya, "New Military Doctrine Identified Threats to the Russian Federation: NATO, Territorial Claims, Destabilization in the Regions," *MKRU*, December 26, 2014. As of January 15, 2016:
<http://www.mk.ru/politics/2014/12/26/novaya-voennaya-doktrina-opredelila-ugrozy-dlya-rf-nato-territorialnye-pretenzii-destabilizaciya-v-regionakh.html>
- Harlan, Chico, "Island Attack Toughened S. Korea's Will to Strike Back Against North," *Washington Post*, April 14, 2013. As of March 12, 2019:
https://www.washingtonpost.com/world/asia_pacific/island-attack-boosted-s-koreas-will-to-strike-back-against-north/2013/04/14/5d6a8a8c-a4d9-11e2-9c03-6952ff305f35_story.html
- Heginbotham, Eric, Michael Nixon, Forrest E. Morgan, Jacob Heim, Jeff Hagen, Sheng Tao Li, Jeffrey Engstrom, Martin C. Libicki, Paul DeLuca, David A. Shlapak, David R. Frelinger, Burgess Laird, Kyle Brady, and Lyle J. Morris, *The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996–2017*, Santa Monica, Calif.: RAND Corporation, RR-392-AF, 2015. As of April 2, 2018:
https://www.rand.org/pubs/research_reports/RR392.html
- Herr, W. Eric, *Operation Vigilant Warrior: Conventional Deterrence Theory, Doctrine, and Practice*, thesis, Maxwell Air Force Base, Ala.: School of Advanced Airpower Studies, Air University, June 1996.
- Heydarian, Richard, "Duterte's Quiet Pivot," *Nikkei Asian Review*, October 16, 2018. As of October 24, 2018:
<https://asia.nikkei.com/Opinion/Duterte-s-quiet-pivot>
- Hoehn, Andrew R., Adam R. Grissom, David A. Ochmanek, David A. Shlapak, and Alan J. Vick, *A New Division of Labor: Meeting America's Security Challenges Beyond Iraq*, Santa Monica, Calif.: RAND Corporation, MG-499-AF, 2007. As of March 15, 2019:
<https://www.rand.org/pubs/monographs/MG499.html>
- Holland, Steve, "Trump Wants to Make Sure U.S. Nuclear Arsenal at 'Top of the Pack,'" *Reuters*, February 23, 2017. As of April 1, 2018:
<https://www.reuters.com/article/us-usa-trump-exclusive/trump-wants-to-make-sure-u-s-nuclear-arsenal-at-top-of-the-pack-idUSKBN1622IF>
- Holland, Steve, Soyoung Kim, and Jack Kim, "In Surprise Summit Concession, Trump Says He Will Halt Korea War Games," *Reuters*, June 11, 2018. As of March 11, 2019:

<https://www.reuters.com/article/us-northkorea-usa/trump-kim-agree-on-denuclearization-but-deal-seen-symbolic-idUSKBN1J72PM>

Hundley, Richard, *Past Revolutions, Future Transformations: What Can the History of Revolutions in Military Affairs Tell Us About Transforming the U.S. Military?* Santa Monica, Calif.: RAND Corporation, MR-1029-DARPA, 1999. As of April 2, 2018:
https://www.rand.org/pubs/monograph_reports/MR1029.html

Hylton, Renee, *When Are We Going? The Army National Guard and the Korean War, 1950–1953*, Washington, D.C.: Historical Services Division, Office of Public Affairs, National Guard Bureau, 2000.

Ignatius, David, “Working with Russia Might Be the Best Path to Peace in Syria,” *Washington Post*, July 4, 2017. As of March 14, 2019:
https://www.washingtonpost.com/opinions/global-opinions/working-with-russia-might-be-the-best-path-to-peace-in-syria/2017/07/04/c2589c9e-6029-11e7-a4f7-af34fc1d9d39_story.html?utm_term=.854824d402b7

IHS Jane’s, *Jane’s World Air Forces*, 2016a.

———, *Jane’s World Navies*, 2016b.

IISS—See International Institute for Strategic Studies.

International Institute for Strategic Studies, *The Military Balance*, Vol. 117, No. 1, 2017. As of March 8, 2019:
<https://www.tandfonline.com/toc/tmib20/117/1?nav=tocList>

———, *The Military Balance*, Vol. 118, No. 1, 2018. As of April 1 2018:
<https://www.tandfonline.com/toc/tmib20/118/1?nav=tocList>

International Trade Administration, “Top U.S. Trade Partners,” Washington, D.C.: U.S. Department of Commerce, undated. As of March 28, 2019:
https://www.trade.gov/mas/ian/build/groups/public/@tg_ian/documents/webcontent/tg_ian_003364.pdf

Jackson, Van, “The Rise and Persistence of Strategic Hedging Across Asia: A System-Level Analysis,” in Ashley J. Tellis, Abraham M. Denmark, and Greg Chaffin, eds., *Strategic Asia 2014–15: U.S. Alliances and Partnerships at the Center of Global Power*, Seattle, Wash.: The National Bureau of Asian Research, 2014, pp. 317–344.

Jalonick, Mary Clare, “Senate Breaks with Trump on Afghanistan, Syria Withdrawal,” Associated Press, February 4, 2019. As of March 17, 2019:
<https://www.militarytimes.com/news/pentagon-congress/2019/02/04/senate-warns-trump-on-afghanistan-syria-withdrawal/>

Jeong, Jeff, “South Korea Quietly Orders 90 More Taurus Bunker-Busting Missiles,” *Defense News*, March 13, 2018. As of March 12, 2019:

<https://www.defensenews.com/global/asia-pacific/2018/03/13/south-korea-quietly-orders-90-more-taurus-bunker-busting-missiles/>

Johnson, Chris, “PLA’s Deeper Engagement in Military Drills Aligns with Xi’s Call for ‘Active’ Chinese Diplomacy,” Center for Strategic and International Studies, Asia Maritime Transparency Initiative, March 3, 2015. As of April 2, 2018:
<http://amti.csis.org/plas-deeper-engagement-in-military-drills-aligns-with-xis-call-for-active-chinese-diplomacy/>

Jones, Sam, “Estonia Ready to Deal with Russia’s ‘Little Green Men,’” *Financial Times*, May 13, 2015.

Jones, Seth G., James Dobbins, Daniel Byman, Christopher S. Chivvis, Ben Connable, Jeffrey Martini, Eric Robinson, and Nathan Chandler, *Rolling Back the Islamic State*, Santa Monica, Calif.: RAND Corporation, RR-1912-SRF, 2017. As of March 14, 2019:
https://www.rand.org/pubs/research_reports/RR1912.html

Joscelyn, Thomas, and Bill Roggio, “Are We Losing Afghanistan Again?” *New York Times*, October 21, 2015. As of April 1, 2018:
<https://www.nytimes.com/2015/10/21/opinion/are-we-losing-afghanistan-again.html>

Judson, Jen, “MDA \$9.9 Billion Budget Request Geared to Address North Korean Threat,” *Defense News*, February 12, 2018. As of April 1, 2018:
<https://www.defensenews.com/land/2018/02/13/mda-99-billion-budget-request-geared-to-address-north-korean-threat/>

Kameda, Masaaki, “Defense White Paper Stresses Threat Posed by China,” *Japan Times*, July 21, 2015. As of April 2, 2018:
<http://www.japantimes.co.jp/news/2015/07/21/national/politics-diplomacy/defense-white-paper-stresses-threat-posed-china/#.VgxGKLRVikp>

Kang, Dake, “North Korean General Says Country Seeking ‘Stable Peace,’” AP News, October 25, 2018. As of March 28, 2019:
<https://www.apnews.com/d546c31d0b8748e19c293f95b42657c9>

Karam, Zeina, “ISIS Loses All Territory, But Its Shadowy Leader Still at Large,” Associated Press, March 23, 2019. As of March 25, 2019:
<https://www.militarytimes.com/flashpoints/2019/03/23/isis-loses-all-territory-but-its-shadowy-leader-still-at-large/>

Kelly, Terrence, Anthony Adler, Todd Nichols, and Lloyd Thrall, *Employing Land-Based Anti-Ship Missiles in the Western Pacific*, Santa Monica, Calif.: RAND Corporation, TR-1321-A, 2013. As of March 13, 2019:
https://www.rand.org/pubs/technical_reports/TR1321.html

Kelly, Terrence K., James Dobbins, David A. Shlapak, David C. Gompert, Eric Heginbotham, Peter Chalk, and Lloyd Thrall, *The U.S. Army in Asia: 2030–2040*, Santa Monica, Calif.:

- RAND Corporation, RR-474-A, 2014. As of March 13, 2019:
https://www.rand.org/pubs/research_reports/RR474.html
- Kelly, Terrence, David C. Gompert, and Duncan Long, *Smarter Power, Stronger Partners*, Volume I: *Exploiting U.S. Advantages to Prevent Aggression*, Santa Monica, Calif.: RAND Corporation, RR-1359-A, 2016. As of March 13, 2019:
https://www.rand.org/pubs/research_reports/RR1359.html
- Kim Eun-jung, “S. Korea Responds to North’s Artillery with New Engagement Rules,” *Yonhap News Agency*, April 1, 2014.
- Kim, Jack, and Lee Jae-won, “North Korea Shells South in Fiercest Attack in Decades,” Reuters, November 23, 2010. As of March 12, 2019:
<https://www.reuters.com/article/us-korea-north-artillery/north-korea-shells-south-in-fiercest-attack-in-decades-idUSTRE6AM0YS20101123>
- Kostopoulos, George K., *Cyberspace and Cybersecurity*, 2nd edition, Abingdon, UK: Taylor & Francis Group, 2018, pp. 237–238.
- Kuhn, Robert Lawrence, “Xi Jinping’s Chinese Dream,” *New York Times*, June 4, 2013. As of March 13, 2019:
<https://www.nytimes.com/2013/06/05/opinion/global/xi-jinpings-chinese-dream.html>
- Lamothe, Dan, and Carol Morello, “Securing North Korean Nuclear Sites Would Require a Ground Invasion, Pentagon Says,” *Washington Post*, November 4, 2017. As of March 11, 2019:
https://www.washingtonpost.com/world/national-security/securing-north-korean-nuclear-sites-would-require-a-ground-invasion-pentagon-says/2017/11/04/32d5f6fa-c0cf-11e7-97d9-bdab5a0ab381_story.html?utm_term=.7385d25193dc
- Lederman, Josh, and Dan De Luce, “In Syria and Afghanistan, Trump at Odds with His Own Past Views,” NBC, December 24, 2018. As of December 28, 2014:
<https://www.nbcnews.com/politics/national-security/syria-afghanistan-trump-odds-his-own-past-views-n950881>
- Lee Kam Hing,, “Malaysia-China Economic Relations: 2000–2010,” in Lam Peng Er, Qin Yaqing, and Yang Mu, eds., *China and East Asia: After the Wall Street Crisis*, Singapore: World Scientific Publishing, January 2013, pp. 241–276.
- Levitt, Matthew, “Hezbollah’s Pivot Toward the Gulf,” *CTC Sentinel*, Vol. 9, No. 8, August 2016.
- Lewis, Jeffrey, “North Korea Is Practicing for Nuclear War,” *Foreign Policy*, March 9, 2017. As of March 11, 2019:
<https://foreignpolicy.com/2017/03/09/north-korea-is-practicing-for-nuclear-war/>

- Liu Zhenmin, “Laying the Foundations of Peace and Stability for an Asian Community of Shared Destiny,” *China International Studies*, Vol. 49, No. 17, 2014.
- Lostumbo, Michael J., “A New Taiwan Strategy to Adapt to PLA Precision Strike Capabilities,” in Roger Cliff, Phillip C. Saunders, and Scott W. Harold, eds., *New Opportunities and Challenges for Taiwan’s Security*, Santa Monica, Calif.: RAND Corporation, CF-279-OSD, 2011, pp. 127–136. As of March 13, 2019:
https://www.rand.org/pubs/conf_proceedings/CF279.html
- Lostumbo, Michael J., David R. Frelinger, James Williams, and Barry Wilson, *Air Defense Options for Taiwan: An Assessment of Relative Costs and Operational Benefits*, Santa Monica, Calif.: RAND Corporation, RR-1051-OSD, 2016. As of March 13, 2019:
https://www.rand.org/pubs/research_reports/RR1051.html
- Lostumbo, Michael J., Michael J. McNerney, Eric Peltz, Derek Eaton, David R. Frelinger, Victoria Greenfield, John Halliday, Patrick Mills, Bruce R. Nardulli, Stacie L. Pettyjohn, Jerry M. Sollinger, and Stephen M. Worman, *Overseas Basing of U.S. Military Forces: An Assessment of Relative Costs and Strategic Benefits*, Santa Monica, Calif.: RAND Corporation, RR-201-OSD, 2013, p. 396. As of April 2, 2018:
https://www.rand.org/pubs/research_reports/RR201.html
- Lowary, Jake, “1,000 from Tennessee National Guard to Deploy to Poland in 2018,” *Tennessean*, November 9, 2017. As of September 2, 2018:
<https://www.tennessean.com/story/news/2017/11/09/tennessee-national-guard-troops-deploy-poland-near-russia-2018/848861001/>
- Maceda, Jim, “Why the Suwalki Gap Keeps Top U.S. General in Europe Up at Night,” NBC News, November 26, 2015. As of December 20, 2015:
<https://www.nbcnews.com/news/world/why-suwalki-gap-keeps-top-u-s-general-europe-night-n469471>
- Mastro, Oriana Skylar, “China’s Military Is About to Go Global,” *The National Interest*, December 18, 2014. As of March 13, 2019:
<https://nationalinterest.org/feature/chinas-military-about-go-global-11882>
- Matsumura, John, Randall Steeb, and John Gordon IV, *Assessment of Crusader: The Army’s Next Self-Propelled Howitzer and Resupply Vehicle*, Santa Monica, Calif.: RAND Corporation, MR-930-A, 1998. As of March 28, 2019:
https://www.rand.org/pubs/monograph_reports/MR930.html
- Mattis, James N., “Remarks by Secretary Mattis on the National Defense Strategy,” transcript, U.S. Department of Defense, January 19, 2018. As of November 6, 2018:
<https://dod.defense.gov/News/Transcripts/Transcript-View/Article/1420042/remarks-by-secretary-mattis-on-the-national-defense-strategy/>

- Mazarr, Michael J., Gian Gentile, Dan Madden, Stacie L. Pettyjohn, and Yvonne K. Crane, *The Korean Peninsula: Three Dangerous Scenarios*, Santa Monica, Calif.: RAND Corporation, PE-262-A, 2018. As of March 28, 2019:
<https://www.rand.org/pubs/perspectives/PE262.html>
- McDonald, Jacob, “Prepositioned Equipment Site Officially Opens in Netherlands,” U.S. Army, webpage, December 16, 2016. As of May 30, 2018:
https://www.army.mil/article/179831/prepositioned_equipment_site_officially_opens_in_netherlands
- McGarry, Brendan W., and Pat Towell, *FY2018 Defense Appropriations Act: An Overview*, Washington, D.C.: Congressional Research Service, April 5, 2018. As of March 7, 2019:
<https://fas.org/sgp/crs/natsec/IF10868.pdf>
- McNulty, Patrick, and Christopher Yung, *China’s Tailored Coercion and Its Rivals’ Actions and Responses: What the Numbers Tell Us*, Washington, D.C.: Center for a New American Security, January 26, 2015. As of March 13, 2019:
<https://www.cnas.org/publications/reports/chinas-tailored-coercion-and-its-rivals-actions-and-responses-what-the-numbers-tell-us>
- Medeiros, Evan S., *China’s International Behavior: Activism, Opportunism, and Diversification*, Santa Monica, Calif.: RAND Corporation, MG-850-AF, 2009. As of March 28, 2019:
<https://www.rand.org/pubs/monographs/MG850.html>
- Medeiros, Evan S., Keith Crane, Eric Heginbotham, Norman D. Levin, Julia F. Lowell, Angel Rabasa, and Somi Seong, *Pacific Currents: The Responses of U.S. Allies and Security Partners in East Asia to China’s Rise*, Santa Monica, Calif.: RAND Corporation, MG-736-AF, 2008. As of March 28, 2019:
<https://www.rand.org/pubs/monographs/MG736.html>
- Ministry of Defense of Japan, “Defense of Japan (Annual White Paper),” webpage, undated. As of April 2, 2018:
www.mod.go.jp/e/publ/w_paper/
- , “Chapter 3: Active Promotion of Security Cooperation,” in *Defense of Japan 2015*, Tokyo, 2015, pp. 270–291.
- Ministry of Foreign Affairs of Japan, *Diplomatic Bluebook 2014 Summary, Chapter 3: Japan’s Foreign Policy to Promote National and Worldwide Interests*, Tokyo, 2014, pp. 27–39.
- Ministry of Foreign Affairs of the People’s Republic of China, “China’s Initiation of the Five Principles of Peaceful Co-Existence,” webpage, undated. As of March 13, 2019:
https://www.fmprc.gov.cn/mfa_eng/ziliao_665539/3602_665543/3604_665547/t18053.shtml
- , “Building the Maritime Silk Road of the 21st Century with Open Mind and Bold Courage,” Embassy of the People’s Republic of China in the United States, February 12,

- 2015a. As of March 13, 2019:
<http://www.china-embassy.org/eng/zgyw/t1237173.htm>
- , “Foreign Ministry Spokesperson Hua Chunying’s Regular Press Conference on April 9, 2015,” Embassy of the People’s Republic of China in the Republic of Finland, April 9, 2015b. As of March 13, 2019:
<https://www.fmprc.gov.cn/ce/cefi/eng/fyrth/t1253488.htm>
- Ministry of National Defense, *2006 Defense White Paper*, Seoul: Republic of Korea, 2006.
- , *2014 Defense White Paper*, Seoul: Republic of Korea, 2014.
- , *2016 Defense White Paper*, Seoul: Republic of Korea, 2016.
- Minnich, James M., *The North Korean People’s Army: Origins and Current Tactics*, 1st ed., Annapolis, Md.: Naval Institute Press, 2005.
- Mizokami, Kyle, “This Is How South Korea Plans to Stop a Nuclear Attack from North Korea,” *The National Interest*, July 10, 2017. As of March 28, 2019:
<https://nationalinterest.org/blog/the-buzz/how-south-korea-plans-stop-nuclear-attack-north-korea-21472>
- Moseley, T M., *Operation Iraqi Freedom: By the Numbers*, Shaw Air Force Base, S.C.: Combined Forces Air Component, Assessment and Analysis Division, April 30, 2003. As of March 11, 2019:
<https://www.comw.org/pda/fulltext/oifcentaf.pdf>
- Murphy, Ann Marie, “Strategic Posture Review: Indonesia,” *World Politics Review*, September 20, 2011. As of March 13, 2019:
<https://www.worldpoliticsreview.com/articles/10066/strategic-posture-review-indonesia>
- Myers, Meghann, “Army to Position More Armored Vehicles in Europe, Speed Upgrades to Equipment at Home,” *Army Times*, March 7, 2018. As of March 14, 2019:
<https://www.armytimes.com/news/your-army/2018/03/07/army-to-position-more-armored-vehicles-in-europe-speed-upgrades-to-equipment-at-home/>
- “Nasrallah Wins the War,” *The Economist*, August 17, 2006. As of April 1, 2018:
<http://www.economist.com/node/7796790>
- NATO—See North Atlantic Treaty Organization.
- Nawyn, Kathleen J., *Department of the Army Historical Summary, Fiscal Year 2003*, Washington, D.C.: Center of Military History, United States Army, 2015.
- North Atlantic Treaty Organization, *The North Atlantic Treaty*, Washington, D.C., April 4, 1949.
- , “Wales Summit Declaration: Issued by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Wales,” press release, September 5, 2014. As

of April 1, 2018:

https://www.nato.int/cps/en/natohq/official_texts_112964.htm

——, “NATO’s Enhanced Forward Presence,” factsheet, Brussels, Belgium: Media Operations Centre, August 2018. As of March 8, 2019:

https://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2018_09/20180910_1809-factsheet_efp_en.pdf

North Atlantic Treaty Organization, Allied Joint Force Command Brunssum, “NATO Response Force (NRF) Fact Sheet,” webpage, undated. As of March 8, 2019:

<https://jfcbs.nato.int/page5725819/nato-response-force-nrf-fact-sheet>

Ochmanek, David, Peter A. Wilson, Brenna Allen, John Speed Meyers, and Carter C. Price, *U.S. Military Capabilities and Forces for a Dangerous World: Rethinking the U.S. Approach to Force Planning*, Santa Monica, Calif.: RAND Corporation, RR-1782-1-RC, 2017. As of March 11, 2019;

https://www.rand.org/pubs/research_reports/RR1782-1.html

Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs, *Defense Manpower Requirements Report, Fiscal Year 2017*, Washington, D.C.: U.S. Department of Defense, April 2016.

Office of the Secretary of Defense, *2000 Report to Congress: Military Situation on the Korean Peninsula*, Washington, D.C.: U.S. Department of Defense, September 12, 2000. As of March 8, 2019:

<https://archive.defense.gov/news/Sep2000/korea09122000.html>

——, *Military and Security Developments Involving the Democratic People’s Republic of Korea: Annual Report to Congress*, Washington, D.C.: U.S. Department of Defense, 2012. As of March 12, 2019:

https://dod.defense.gov/Portals/1/Documents/pubs/Report_to_Congress_on_Military_and_Security_Developments_Involving_the_DPRK.pdf

——, *Military and Security Developments Involving the Democratic People’s Republic of Korea: Annual Report to Congress*, Washington, D.C.: U.S. Department of Defense, February 4, 2014. As of March 12, 2019:

<https://apps.dtic.mil/dtic/tr/fulltext/u2/a596219.pdf>

——, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2017*, Washington, D.C.: U.S. Department of Defense, May 15, 2017. As of March 12, 2019:

https://dod.defense.gov/Portals/1/Documents/pubs/2017_China_Military_Power_Report.PDF

——, *Annual Report to Congress: Military and Security Developments Involving the People’s Republic of China 2018*, Washington, D.C.: U.S. Department of Defense, May 16, 2018. As

of March 12, 2019:
<https://www.hsdl.org/?abstract&did=814130>

Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, *Defense Budget Overview, United States Department of Defense Fiscal Year 2019 Budget Request*, Washington, D.C.: U.S. Department of Defense, February 2018a. As of March 11, 2019:
<https://dod.defense.gov/Portals/1/Documents/pubs/FY2019-Budget-Request-Overview-Book.pdf>

———, *Program Acquisition Cost by Weapon System: United States Department of Defense Fiscal Year 2019 Budget Request*, Washington, D.C.: U.S. Department of Defense, February 2018b. As of June 16, 2018:
https://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2019/FY2019_Weapons.pdf

Palansamy, Yiswaree, “Dr. M: China Envoy ‘Concerned’ over Putrajaya’s Use of Race Card,” *The Malay Mail Online*, September 29, 2015. As of March 13, 2019:
<https://sg.news.yahoo.com/dr-m-china-envoy-concerned-over-putrajaya-race-032600866.html>

Panda, Ankit, “China Creates New ‘Asia for Asians’ Security Forum,” *The Diplomat*, September 15, 2014. As of March 13, 2019:
<https://thediplomat.com/2014/09/china-creates-new-asia-for-asians-security-forum/>

———, “Exclusive: Revealing Kangson, North Korea’s First Covert Uranium Enrichment Site,” *The Diplomat*, July 13, 2018. As of October 22, 2018:
<https://thediplomat.com/2018/07/exclusive-revealing-kangson-north-koreas-first-covert-uranium-enrichment-site/>

Parachini, John V., “Assessing North Korea’s Chemical and Biological Weapons Capabilities and Prioritizing Countermeasures: Testimony Before the House Foreign Affairs Committee, Subcommittee on Terrorism, Nonproliferation and Trade, and the Subcommittee on Asia and the Pacific,” Santa Monica, Calif.: RAND Corporation, CT-486, January 17, 2018. As of March 8, 2019:
<https://www.rand.org/pubs/testimonies/CT486.html>

Parameswaran, Prashanth, *Playing It Safe: Malaysia’s Approach to the South China Sea and Implications for the United States*, Washington, D.C.: Center for a New American Security, February 2015. As of April 2, 2018:
https://s3.amazonaws.com/files.cnas.org/documents/CNAS-Maritime-6_Parameswaran_Final.pdf?mtime=20160906081622

Permanent Court of Arbitration, “PCA Press Release: The South China Sea Arbitration (The Republic of the Philippines v. The People’s Republic of China),” webpage, July 12, 2016. As of March 13, 2019:

<https://pca-cpa.org/en/news/pca-press-release-the-south-china-sea-arbitration-the-republic-of-the-philippines-v-the-peoples-republic-of-china/>

Pernin, Cristopher G., Edward Wu, Aaron L. Martin, Greg Midgette, and Brendan See, *Efficiencies from Applying a Rotational Equipping Strategy*, Santa Monica, Calif.: RAND Corporation, MG-1092-A, 2011. As of March 15, 2017:
<https://www.rand.org/pubs/monographs/MG1092.html>

Perry, William J., *Annual Report to the President and the Congress*, Washington, D.C.: U.S. Department of Defense, February 1995. As of March 9, 2019:
https://history.defense.gov/Portals/70/Documents/annual_reports/1995_DoD_AR.pdf?ver=2014-06-24-152712-813

Pettypiece, Shannon, and Bill Faries, “Trump Hasn’t Ordered Afghan Troop Withdrawal, White House Says,” Bloomberg, December 28, 2018. As of December 28, 2018:
<https://www.bloomberg.com/news/articles/2018-12-28/trump-hasn-t-ordered-afghanistan-withdrawal-white-house-says>

“Philippine Navy Chief: China Is Not Expanding Territory in South China Sea,” *China Military Online*, August 12, 2015. As of April 2, 2018:
http://eng.chinamil.com.cn/news-channels/pla-daily-commentary/2015-08/12/content_6626993.htm

Post Opinions Staff, “A Transcript of Donald Trump’s Meeting with the *Washington Post* Editorial Board,” *Washington Post*, March 21, 2016. As of April 1, 2018:
https://www.washingtonpost.com/blogs/post-partisan/wp/2016/03/21/a-transcript-of-donald-trumps-meeting-with-the-washington-post-editorial-board/?utm_term=.afc5df8b2792

President of Russia, *Military Doctrine of the Russian Federation*, Moscow, December 25, 2014.

Public Law 99-433, Goldwater-Nichols Defense Department Reorganization Act, October 1, 1986.

Quinlivan, James T., “Burden of Victory: The Painful Arithmetic of Stability Operations,” *RAND Review*, Vol. 27, No. 2, Summer 2003, pp. 28–29. As of March 12, 2019:
https://www.rand.org/pubs/corporate_pubs/CP22-2003-08.html

Radio Free Europe and Radio Liberty, “NATO Agrees to ‘Four 30s’ Plan to Counter Russia,” June 7, 2018. As of March 9, 2019:
<https://www.rferl.org/a/nato-ministers-expected-to-okay-four-thirties-initiative-stoltenberg/29275979.html>

Reed, John, “Air Force Now Has the MOP,” *Defense Tech*, November 15, 2011. As of May 26, 2017:
<https://www.military.com/defensetech/2011/11/15/air-force-now-has-the-mop>

- Reuters, “Russia’s New Military Doctrine Names NATO as Key Risk,” December 26, 2014. As of March 28, 2019:
<https://www.reuters.com/article/us-russia-crisis-military-doctrine-idUSKBN0K40Q120141226>
- Rogin, Josh, “Petraeus: The UAE’s Air Force Could Take Out Iran’s,” *Foreign Policy*, December 17, 2009. As of April 1, 2018:
<https://foreignpolicy.com/2009/12/17/petraeus-the-uaes-air-force-could-take-out-irans/>
- Rottman, Gordon L., and Chris Taylor, *The Berlin Wall and the Intra-German Border 1961–89*, Oxford, UK: Osprey Publishing, February 6, 2008.
- Samaha, Nour, “Hezbollah’s Death Valley,” *Foreign Policy*, March 3, 2016. As of April 1, 2018:
<http://foreignpolicy.com/2016/03/03/hezbollahs-death-valley/>
- Schwartz, Thomas A., “Statement of General Thomas A. Schwartz, Commander in Chief, United Nations Command/Combined Forces Command and Commander, United States Forces Korea—House Appropriations Defense Subcommittee Hearing on Fiscal Year 2002 Posture Statement,” March 8, 2001.
- Scobell, Andrew, *Projecting Pyongyang: The Future of North Korea’s Kim Jong Il Regime*, Carlisle, Pa.: U.S. Army War College Strategic Studies Institute, 2008.
- Scobell, Andrew, and Scott W. Harold, “An ‘Assertive’ China? Insights from Interviews,” *Asian Security*, Vol. 9, No. 2, 2013, pp. 111–131.
- Secretary of the Air Force Public Affairs, “Air Force Leaders Say Increased Funding Is Improving Readiness,” webpage, October 10, 2018. As of March 15, 2019:
<https://www.af.mil/News/Article-Display/Article/1658215/air-force-leaders-say-increased-funding-is-improving-readiness/>
- Shane, Leo, “In His Own Words: Mattis On the Challenges Facing the Military,” *Military Times*, January 15, 2017. As of March 8, 2019:
<https://www.militarytimes.com/news/2017/01/15/in-his-own-words-mattis-on-the-challenges-facing-the-military/>
- Shanghai Institutes for International Studies, *China’s Global Strategy, 2012–2023*, September 2013. As of July 24, 2014:
<http://en.siis.org.cn/uploadfile/2013/1019/20131019065456733.pdf>
- Shlapak, David A., “Deterring Russian Aggression in the Baltic States: What It Takes to Win: Testimony Before the House Armed Services Committee, Subcommittee on Tactical Air and Land Forces,” Santa Monica, Calif.: RAND Corporation, CT-467, March 1, 2017. As of March 11, 2019:
<https://www.rand.org/pubs/testimonies/CT467.html>

- Shlapak, David A. and Michael W. Johnson, *Reinforcing Deterrence on NATO's Eastern Flank: Wargaming the Defense of the Baltics*, Santa Monica, Calif.: RAND Corporation, RR-1253-A, 2016. As of March 8, 2019:
https://www.rand.org/pubs/research_reports/RR1253.html
- “Shia Iraqi Militia Promises to Spread Fight to Saudi Arabia,” *Middle East Monitor*, June 5, 2017. As of April 1, 2018:
<https://www.middleeastmonitor.com/20170605-shia-iraqi-militia-promises-to-spread-fight-to-saudi-arabia/>
- Shurkin, Michael, *Setting Priorities in the Age of Austerity: British, French, and German Experiences*, Santa Monica, Calif.: RAND Corporation, RR-222-A, 2013. As of September 1, 2015:
https://www.rand.org/pubs/research_reports/RR222.html
- SIPRI—See Stockholm International Peace Research Institute.
- Smith, Alexander, “Russian Flyby of USS *Donald Cook* in Baltic Sea Alarms Experts,” NBC News, April 14, 2016. As of June 4, 2016:
<https://www.nbcnews.com/news/world/russian-flyby-uss-donald-cook-baltic-sea-alarms-experts-n555921>
- Smith, Josh, “Impossible Dream? Unifications Less of a Priority as Korean Leaders Prepare to Talk,” Reuters, April 25, 2018. As of March 28, 2019:
<https://www.reuters.com/article/us-northkorea-southkorea-unification-ins/impossible-dream-unification-less-of-a-priority-as-korean-leaders-prepare-to-talk-idUSKBN1HW0P0>
- South, Todd, “If Russia Started World War III, Here's How It Would Go Down,” *Military Times*, September 13, 2017. As of March 8, 2019:
<https://www.militarytimes.com/flashpoints/2017/09/13/if-russia-started-world-war-iii-heres-how-it-would-go-down/>
- Starr, Barbara, Ryan Browne, and Nicole Gaouette, “Trump Orders Rapid Withdrawal from Syria in Apparent Reversal,” CNN, December 19, 2018. As of December 28, 2019:
<https://www.cnn.com/2018/12/19/politics/us-syria-withdrawal/index.html>
- “Statement of Secretary of Defense Robert S. McNamara Before the Senate Armed Services Committee on the Fiscal Year 1969–73 Defense Program and 1969 Defense Budget,” Washington. D.C., 1968.
- Stavridis, James, “NATO Is in the Middle of an Expensive and Dangerous Military Exercise. Here's Why Those War Games Are Worth It,” *Time*, updated October 29, 2018. As of November 2, 2018:
<http://time.com/5438453/nato-military-exercises-war-games/>
- Stockholm International Peace Research Institute, *SIPRI Yearbook 2018: Armaments, Disarmament, and International Security*, Oxford, UK: Oxford University Press, 2018a.

- , “Modernization of Nuclear Weapons Continues; Number of Peacekeepers Declines,” press release, June 18, 2018b. As of March 11, 2019:
<https://www.sipri.org/media/press-release/2018/modernization-nuclear-weapons-continues-number-peacekeepers-declines-new-sipri-yearbook-out-now>
- Stuckey, John D., and Joseph H. Pistorius, “Mobilization for the Vietnam War: A Political and Military Catastrophe,” *Parameters*, Vol. 15, No. 1, 1985, pp. 26–38.
- Swain, Richard M., *“Lucky War”: Third Army in Desert Storm*, Fort Leavenworth, Kansas: U.S. Army Command and General Staff College Press, 1997.
- Swaine, Michael D., “China’s Assertive Behavior—Part 1: On ‘Core Interests,’” *China Leadership Monitor*, No. 34, February 22, 2011. As of March 13, 2019:
https://carnegieendowment.org/files/CLM34MS_FINAL.pdf
- Swaine, Michael D., “Chinese Views and Commentary on Periphery Diplomacy,” *China Leadership Monitor*, No. 44, Summer 2014.
- Tabler, Andrew, “The Scramble for Eastern Syria,” *Foreign Affairs*, June 3, 2017. As of March 14, 2019:
<https://www.foreignaffairs.com/articles/syria/2017-06-03/scramble-eastern-syria>
- Tirpak, John A., “Legacy of the Air Blockades,” *Air Force Magazine*, February 2003. As of April 2, 2018:
<http://www.airforcemag.com/MagazineArchive/Documents/2003/February%202003/02legacy03.pdf>
- “Transcript of Donald Trump’s Speech on National Security in Philadelphia,” *The Hill*, September 7, 2016. As of March 15, 2019:
<https://thehill.com/blogs/pundits-blog/campaign/294817-transcript-of-donald-trumps-speech-on-national-security-in>
- Tweed, David, and Ting Shi, “There’s One North Korea Taboo China’s Leaders Won’t Talk About,” *Bloomberg*, September 26, 2017. As of March 12, 2019:
<https://www.bloomberg.com/news/articles/2017-09-26/china-s-biggest-taboo-on-north-korea-discussing-life-after-kim>
- United Nations Office for Disarmament Affairs, “Treaty on the Non-Proliferation of Nuclear Weapons (NPT),” webpage, undated. As of March 12, 2019:
<https://www.un.org/disarmament/wmd/nuclear/npt/>
- “U.S. Approval of \$330 Million Military Sale to Taiwan Draws China’s Ire,” *Reuters World News*, September 24, 2018. As of March 13, 2019:
<https://www.reuters.com/article/us-usa-taiwan-military/u-s-approval-of-330-million-military-sale-to-taiwan-draws-chinas-ire-idUSKCN1M42J9>

- “U.S. Army Opens Storage Depot for 1,600 Tanks in Limburg,” *DutchNews*, December 15, 2016. As of May 30, 2017:
<https://www.dutchnews.nl/news/2016/12/us-army-opens-storage-depot-for-1600-tanks-in-limburg/>
- U.S. Code, Title 10, Section 12301, “Reserve Components Generally,” undated(a). As of March 15, 2019:
<https://policy.defense.gov/portals/11/Documents/hdasa/references/10%20USC%2012301.pdf>
- U.S. Code, Title 10, Section 12302, “Ready Reserve,” undated(b). As of March 15, 2019:
<https://www.govinfo.gov/content/pkg/USCODE-2010-title10/pdf/USCODE-2010-title10-subtitleE-partII-chap1209-sec12302.pdf>
- U.S. Code, Title 10, Section 12304, “Selected Reserve and Certain Individual Ready Reserve Members; Order to Active Duty Other than During War or National Emergency,” undated(c). As of March 15, 2019:
<https://policy.defense.gov/portals/11/Documents/hdasa/references/10%20USC%2012304.pdf>
- U.S. Department of the Air Force, “Joint Direct Attack Munition GBU-31/32/38,” Washington, D.C., fact sheet, June 18, 2003. As of March 12, 2019:
<https://www.af.mil/About-Us/Fact-Sheets/Display/Article/104572/joint-direct-attack-munition-gbu-313238/>
- , “Joint Direct Attack Munition Budget Line Justification PB 2016,” in *Air Force Department of Defense Fiscal Year (FY) 2016 President’s Budget Submission: Justification Book Volume 1 of 1: Procurement of Ammunition*, Air Force, Washington, D.C., February 2015. As of March 12, 2019:
<https://www.saffm.hq.af.mil/Portals/84/documents/FY16/AFD-150304-002.pdf?ver=2016-08-24-100209-630>
- , *USAF Posture Statement Fiscal Year 2018: Department of the Air Force Presentation to the Committee on Appropriations Subcommittee on Defense*, Washington, D.C., June 21, 2017. As of March 15, 2019:
<https://www.af.mil/Portals/1/documents/airpower/FY18%20AF%20Posture%20Statement%20Final.pdf?ver=2017-06-30-093831-353>
- U.S. Department of Defense, “Operation Inherent Resolve: Targeted Operations to Defeat ISIS,” archived webpage, undated. As of August 23, 2017:
<https://www.defense.gov/OIR/>
- , *National Defense Strategy*, Washington, D.C., June 2008a.
- , “Managing the Reserve Components as an Operational Force,” Washington, D.C., DoD Directive No. 1200.17, October 29, 2008b. As of October 28, 2018:
<http://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodd/120017p.pdf>

- , *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense*, Washington, D.C., January 2012. As of March 15, 2019:
http://archive.defense.gov/news/defense_strategic_guidance.pdf
- , *Quadrennial Defense Review 2014*, Washington, D.C., March 4, 2014. As of March 6, 2019:
http://archive.defense.gov/pubs/2014_quadrennial_defense_review.pdf
- , *Guided Multiple Launch Rocket System/Guided Multiple Launch Rocket System Alternative Warhead (GMLRS/GMLRS AW)*, Washington, D.C., Selected Acquisition Report RCS: DD-A&T(Q&A)823-260, March 18, 2015a. As of June 16, 2018:
https://www.esd.whs.mil/Portals/54/Documents/FOID/Reading%20Room/Selected_Acquisition_Reports/15-F-0540_GMLRS_GMLRS_AW_SAR_Dec_2014.PDF
- , *The Asia-Pacific Maritime Security Strategy: Achieving U.S. National Security Objectives in a Changing Environment*, Washington, D.C., August 21, 2015b. As of March 13, 2019:
https://dod.defense.gov/Portals/1/Documents/pubs/NDAA%20A-P_Maritime_Security_Strategy-08142015-1300-FINALFORMAT.PDF
- , “Department of Defense Press Briefing by General Hodges on Operation Atlantic Resolve in the Pentagon Briefing Room,” transcript, December 9, 2015c. As of December 20, 2015:
<https://dod.defense.gov/News/Transcripts/Transcript-View/Article/633667/departments-of-defense-press-briefing-by-general-hodges-on-operation-atlantic-re/>
- , *Annual Aviation Inventory and Funding Plan, Fiscal Years (FY) 2017–2046*, Washington, D.C., March 2016a. As of March 12, 2019:
<https://ec.militarytimes.com/static/pdfs/2016-Annual-Aviation-Report.pdf>
- , *Joint Direct Attack Munition (JDAM)*, Washington, D.C., Selected Acquisition Report RCS: DD-A&T(Q&A)823-503, March 21, 2016b. As of March 12, 2019:
<https://apps.dtic.mil/dtic/tr/fulltext/u2/1019464.pdf>
- , “Department of Defense Press Briefing by Secretary Mattis, General Dunford, and Special Envoy McGurk on the Campaign to Defeat ISIS in the Pentagon Press Briefing Room,” transcript, Washington, D.C., May 19, 2017. As of March 14, 2019:
<https://dod.defense.gov/News/Transcripts/Transcript-View/Article/1188225/departments-of-defense-press-briefing-by-secretary-mattis-general-dunford-and-sp/>
- , *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military’s Competitive Edge*, Washington, D.C., January 19, 2018a. As of March 5, 2019:
<https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>

- , *Nuclear Posture Review*, Washington, D.C., February 2018b. As of March 11, 2019:
<https://www.acq.osd.mil/ncbdp/docs/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>
- U.S. Department of Defense News, “Mattis, Indonesian Counterpart Reaffirm Defense Relationship,” news release, U.S. Department of Defense Media Activity, August 28, 2018. As of October 24, 2018:
<https://dod.defense.gov/News/Article/Article/1615141/mattis-indonesian-counterpart-reaffirm-defense-relationship/>
- U.S. Department of Homeland Security, “Nuclear Attack Fact Sheet,” Washington, D.C., February 19, 2019. As of March 12, 2019:
<https://www.dhs.gov/publication/nuclear-attack-fact-sheet>
- U.S. Department of State, “Closing Remarks for U.S.-China Strategic and Economic Dialogue,” Washington, D.C., July 28, 2009. As of July 30, 2015:
<https://2009-2017.state.gov/secretary/20092013clinton/rm/2009a/july/126599.htm>
- , “U.S. Security Cooperation with Iraq,” fact sheet, Washington, D.C., March 22, 2017. As of March 17, 2019:
<https://www.state.gov/r/pa/prs/ps/2017/03/269040.htm>
- U.S. Energy Information Administration, “The South China Sea Is an Important World Energy Trade Route,” webpage, April 4, 2013. As of October 7, 2015:
<http://www.eia.gov/todayinenergy/detail.cfm?id=10671>
- U.S. Fleet Forces Command, “What Is the Optimized Fleet Response Plan and What Will It Accomplish?” Navy Live, U.S. Navy blog, January 15, 2014. As of November 19, 2018:
<http://navylive.dodlive.mil/2014/01/15/what-is-the-optimized-fleet-response-plan-and-what-will-it-accomplish/>
- U.S. General Accounting Office, *U.S. Combat Air Power: Reassessing Plans to Modernize Interdiction Capabilities Could Save Billions*, Washington, D.C., GAO/NSIAD-96-72, May 13, 1996. As of March 12, 2019:
<https://www.gao.gov/products/NSIAD-96-72>
- U.S. Government Accountability Office, *Military Readiness: Navy’s Fleet Response Plan Would Benefit from a Comprehensive Management Approach and Rigorous Testing*, Washington, D.C., GAO-06-84, November 2005. As of March 15, 2019:
<https://www.gao.gov/assets/250/248620.pdf>
- , *Defense Management: Comprehensive Cost Information and Analysis of Alternatives Needed to Assess Military Posture in Asia*, Washington, D.C., GAO-11-316, May 25, 2011. As of March 12, 2019:
<https://www.gao.gov/products/GAO-11-316>

- , *Weapon Systems Cybersecurity: DOD Just Beginning to Grapple with Scale of Vulnerabilities*, Washington, D.C., GAO-19-128, October 2018. As of March 8, 2019: <https://www.gao.gov/assets/700/694913.pdf>
- U.S. Marine Corps, *Marine Corps Planner's Manual*, Washington, D.C., MCO P3000.18, May 19, 2003. As of March 12, 2019: https://www.globalsecurity.org/military/library/policy/usmc/mco/p3000-18/mco-p3000-18_2003.pdf
- “USN Demonstrates SM-6 Asuw Capability Giving the Fleet a New Offensive Weapon,” *Jane's*, March 10, 2016.
- “U.S. Plans to Sell Taiwan About \$1.42 Billion in Arms Could Test China Ties,” CNBC Asia-Pacific News, June 29, 2017. As of March 13, 2019: <https://www.cnbc.com/2017/06/29/china-reacts-angrily-as-us-plans-to-sell-taiwan-about-1-point-42-billion-in-arms.html>
- U.S. Senate Armed Services Committee, *Secretary of Defense Jim Mattis, Senate Armed Services Committee, Written Statement for the Record, Thursday, April 26, 2018*, Washington, D.C., April 26, 2018. As of May 4, 2018: https://www.armed-services.senate.gov/imo/media/doc/Mattis_04-26-18.pdf
- Vasani, Harsh, “How China Is Weaponizing Outer Space,” *The Diplomat*, January 19, 2017. As of March 13, 2019: <https://thediplomat.com/2017/01/how-china-is-weaponizing-outer-space/>
- Vergun, David, “Investments in Modernization, People Increasing Readiness, Say Army Secretary, Chief of Staff,” Army News Service, March 15, 2018a. As of November 20, 2018: https://www.army.mil/article/202260/investments_in_modernization_people_increasing_readiness_say_army_secretary_chief_of_staff
- , “Army Readiness, Lethality Increasing Amid Troubled World, Says Chief of Staff,” U.S. Army webpage, October 9, 2018b. As of November 20, 2018: https://www.army.mil/article/212191/army_readiness_lethality_increasing_amid_troubled_world_says_chief_of_staff
- Wachman, Alan M., “Playing by or Playing with the Rules of UNCLOS?” in Peter Dutton, ed., *Military Activities in the EEZ: A U.S.-China Dialogue on Security and International Law in the Maritime Commons*, Newport, R.I.: U.S. Naval War College, December 2010.
- Ward, Alex, “Tillerson Says the Taliban Won't Win in Afghanistan—and Neither Will the U.S.,” Vox, August 22, 2017. As of March 14, 2019: <https://www.vox.com/world/2017/8/22/16185750/tillerson-taliban-we-may-not-win-neither-will-you-trump-speech>
- Warrick, Joby, Ellen Nakashima, and Anna Fifield, “North Korea Now Making Missile-Ready Nuclear Weapons, U.S. Analysts Say,” *Washington Post*, August 8, 2017. As of March 11,

2019:

https://www.washingtonpost.com/world/national-security/north-korea-now-making-missile-ready-nuclear-weapons-us-analysts-say/2017/08/08/e14b882a-7b6b-11e7-9d08-b79f191668ed_story.html

The White House, *National Security Strategy of the United States of America*, Washington D.C., May 2010. As of March 12, 2019:
<http://nssarchive.us/NSSR/2010.pdf>

———, *National Security Strategy of the United States of America*, Washington, D.C., February 2015. As of March 15, 2019:
https://obamawhitehouse.archives.gov/sites/default/files/docs/2015_national_security_strategy_2.pdf

———, *Making Our Military Strong Again*, Washington, D.C., January 20, 2017a.

———, “Remarks by President Trump on the Strategy in Afghanistan and South Asia,” Arlington, Va.: Fort Myer, August 21, 2017b. As of March 14, 2019:
<https://www.whitehouse.gov/briefings-statements/remarks-president-trump-strategy-afghanistan-south-asia/>

———, *National Security Strategy of the United States of America*, Washington, D.C., December 2017c. As of March 7, 2019:
<https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf>

———, *National Biodefense Strategy 2018*, Washington, D.C., 2018. As of March 8, 2019:
<https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Biodefense-Strategy.pdf>

The White House of Barack Obama, Office of the Press Secretary, “Remarks by President Obama in Press Conference After GCC Summit,” May 14, 2015. As of March 14, 2019:
<https://obamawhitehouse.archives.gov/realitycheck/the-press-office/2015/05/14/remarks-president-obama-press-conference-after-gcc-summit>

The White House of George H. W. Bush, *National Security Strategy of the United States*, Washington, D.C., August 1991. As of March 15, 2019:
<http://nssarchive.us/NSSR/1991.pdf>

The White House, Office of the Press Secretary, “1/29/17: Readout of the President’s Call with Acting President Hwang Kyo-Ahn of the ROK,” Washington, D.C., January 29, 2017a. As of March 8, 2019:
<https://kr.usembassy.gov/012917-readout-presidents-call-acting-president-hwang-kyo-ahn-republic-korea/>

———, “Remarks by President Trump to Coalition Representatives and Senior U.S. Commanders,” MacDill Air Force Base, Tampa, Florida, February 6, 2017b. As of March 8, 2019:

<https://www.whitehouse.gov/briefings-statements/remarks-president-trump-coalition-representatives-senior-u-s-commanders/>

Williams, Lynn M., and Pat Towell, *FY2018 Defense Budget Request: The Basics*, Washington, D.C.: Congressional Research Service, R-44866, June 9, 2017. As of March 7, 2019: <https://fas.org/sgp/crs/natsec/R44866.pdf>

Wilson, Heather, “Current Readiness of the U.S. Air Force,” Department of the Air Force Presentation to the Subcommittee on Readiness and Management Support, United States Senate Washington, D.C., October 10, 2018. As of March 15, 2019: <https://www.af.mil/Portals/1/Air%20Force%202018%20Readiness%20Statement.pdf?ver=2018-10-10-111333-930×tamp=1539184457152>

Winnefeld, James, Preston Niblack, and Dana J. Johnson, *A League of Airmen: U.S. Air Power in the Gulf War*, Santa Monica, Calif.: RAND Corporation, MR-343-AF, 1994. As of March 8, 2019: https://www.rand.org/pubs/monograph_reports/MR343.html

Worden, Robert L., ed., *North Korea: A Country Study*, Washington, D.C.: Library of Congress, 2008.

Wu Jiao and Zhang Yunbi, “Xi Calls for Building of New ‘Maritime Silk Road,’” *China Daily*, October 4, 2013.

Xi Jinping, “New Asian Security Concept for New Progress in Security Cooperation,” Remarks at the Fourth Summit of the Conference on Interaction and Confidence Building Measures in Asia, Shanghai Expo Center, Ministry of Foreign Affairs of the People’s Republic of China, May 21, 2014.

Yaari, Ehud, “Iran’s Ambitions in the Levant,” *Foreign Affairs*, May 1, 2017. As of March 13, 2019: <https://www.foreignaffairs.com/articles/iran/2017-05-01/irans-ambitions-levant>

Yan Xuetong, “From Keeping a Low Profile to Striving for Achievement,” *Chinese Journal of International Politics*, Vol. 7, No. 2, Summer 2014, pp. 153–184.

Yang Wenchang, “My Views About ‘Tao Guang Yang Hui,’” *Foreign Affairs Journal*, No. 102, Winter 2011.

Yin Xingmin, “China’s Intermediate Goods Trade with ASEAN: A Profile of Four Countries,” in Mitsuhiro Kagami, *Intermediate Goods Trade in East Asia: Economic Deepening Through FTAs/EPAs*, Bangkok, Thailand: Bangkok Research Center, Research Report No. 5, 2011, pp. 68–118.

Yong Deng, “Hegemon on the Offensive: Chinese Perspectives on U.S. Global Strategy,” *Political Science Quarterly*, Vol. 116, No. 3, Autumn 2001, pp. 343–365.

Significant gaps exist in the ability of the United States and its allies to deter or defeat aggression that could threaten national interests. For example, NATO members Estonia, Latvia, and Lithuania remain vulnerable to Russian invasion. South Korea is vulnerable to North Korea's artillery. China's neighbors—especially Taiwan—are vulnerable to coercion and aggression. Violent extremists continue to pose a threat in the Middle East. Solutions to these problems will take both money and time. In this report, RAND researchers analyze the specific technological, doctrinal, and budgetary gaps between the stated strategic and defense policies of the United States and the resources and capabilities that would be required to implement those policies successfully.

Absent a change in administration policy or a new political consensus in favor of a defense buildup, there will not be enough resources to close the gap between stated U.S. aims and the military capabilities needed to achieve them. This leaves the Trump administration and this Congress with some difficult choices. The United States could decide to focus primarily on its own security, devoting to allies and partners only those forces and capabilities that could be easily spared. At the other end of the spectrum, the Trump administration could take the central role in defending U.S. allies against aggression by Russia, China, and other potential adversaries. The hard-to-find middle ground would be to provide the military with sufficient capabilities to ensure that aggression that imperils U.S. interests in critical regions would fail while helping allies build the capacity to do more for their own and the collective defense.



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